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DANGER IN THE SUBCUTANEOUS INJECTION OF SOLUTIONS OF CROTALIN

WITH REPORT OF A FATAL CASE

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In a preliminary report in 1910, Dr. Ralph H. Spangler[1] reported the results of the treatment of eleven cases of epilepsy by injections with a solution of the venom of the rattlesnake (*Crotalus horridus*). In a second paper[2] he reported on fifty-one additional cases treated with rattlesnake venom. Since then there have appeared reports from others on the use of solutions of crotalin for the treatment not only of epilepsy, but also of certain other conditions, including tuberculosis, all based on purely empiric grounds.

I shall not discuss at this time whether or not rattlesnake venom is a cure for epilepsy, nor shall I enter into an analysis of the reported effect on the course of the disease of the venom treatment; but I think it proper to state that it hardly seems permissible to conclude from the published reports that the treatment was of any very great permanent benefit.

In the second paper Spangler gives certain information on the method of preparation of the venom solution, dosage, local reaction, and other matters connected with the treatment. The points which, at this time, mostly concern us are in regard to the solution and the local reaction.

It is stated in the paper that the solution used should be "as near a standard and as uniform as possible," and that it consists of the "dried, crystal-like scales, from the venom of *Crotalus horridus*, dissolved in sterile water, to which has been added a few drops of trikresol for its preservative and antiseptic effect." "This sterile, antiseptic solution" is dispensed in sterile ampules containing one dose each.

In view of what is said later it will be apparent to every one that a sterile solution is not always dispensed: on the contrary, solutions prepared, as suggested, have been found to contain dangerous bacteria, and death has resulted from the use of such a solution. If by a "standard, uniform solution" is meant a solution of uniform toxicity for equal weights of dried venom, it is difficult to understand how such a standard solution can always be obtained, especially since Noguchi states that different observers estimate that the loss in weight by drying of the fresh venom is from 25.15 to 50 per cent. Spangler states that patients vary greatly as to the swelling, erythema and cellulitis produced by the injection of rattlesnake venom, and that even in the same person great variation is noted in the local reaction. He says that at times $^1/_{100}$ grain will cause a more severe local reaction than will $^1/_{50}$ grain at another time. This to my mind is more probably an indication of the lack of uniformity in the strength of the venom solution than of variation in susceptibility of the individual. He emphasizes the statement that a good local reaction is necessary to produce a systemic effect, and that the "value of the treatment bears a direct relation to the presence of a satisfactory local reaction."

There can hardly be any doubt that a severe local reaction is likely to make a more profound psychic impression, but there also can be little doubt that a severe local reaction is more likely to invite secondary infection, and especially to favor the growth in the tissues of certain anaerobic bacteria such as were found in the tissues of the fatal case referred to in this paper. This brings up another very important point in regard to the dangers of the use on almost empiric grounds of rattlesnake venom for the treatment of certain diseases.

Weir Mitchell many years ago pointed out the great possibility of a secondary infection in a subject which survives the acute action of rattlesnake poison, and also called attention to the rapid decomposition following death from snake venom.

Welch and Ewing in 1893 showed that rattlesnake venom has the property of almost completely destroying the bactericidal power of the blood. This work was confirmed and extended by Flexner and Noguchi, so that we now know that the defenses of the body against bacterial invasion, even if it survives the acute intoxication of the venom, are greatly reduced or abolished by the antibactericidal properties of snake venom.

The patient on whom the venom is used, then, not only has the possibility of infection from the harmful bacteria that may be present in the solution of venom used for injection, but also is exposed to the liability of a secondary infection through the breaking down of the natural defenses of the body by the loss of the antibactericidal power of the blood consequent on the action of the venom.

Mention has previously been made of the death of an epileptic who had been receiving the venom treatment. This person died as a result of infection contained in a solution of venom which, when bought, was not sterile and which contained pathogenic bacteria. An abstract of the history of this fatal case is as follows:

W. H., aged 15, with negative family history, had never been a healthy, robust child, and for the past nine years had suffered from idiopathic epilepsy, which his mother states came on after an attack of malaria when 6 years old. During these nine years he had received treatment and been under

1. Spangler, R. H.: New York Med. Jour., Sept. 3, 1910.
2. Spangler, R. H.: New York Med. Jour., Sept. 9, 1911.

the care of the best authorities which his parents could afford. In spite of this close care and attention his condition steadily grew worse and at the time of reporting for treatment he was having from twelve to sixteen attacks per month and his condition looked hopeless.

His parents were very anxious to try anything which held out any hope for him, and at the suggestion of a friend of theirs they became interested in the crotalin treatment of epilepsy and asked to have the treatment administered. The crotalin ampules used in this case were obtained from a dealer, and in order to guard against any outside infection a very careful aseptic technic was carried out at the time of each injection and these injections were given as follows:

Injection	Date	Dosage grain
1.	January 18, 1913	1/200
2.	February 3	1/100
3.	February 8	1/ 75
4.	February 13	1/ 75
5.	February 18	1/ 50
6.	February 24	1/ 50
7.	March 1	1/ 50
8.	March 5	1/ 50
9.	March 10	1/ 50
10.	March 15	1/50
11.	March 19	1/50
12.	March 22	1/50
13.	March 25	1/50
14.	March 29	1/25
15.	April 2	1/25
16.	April 5	1/25
17.	April 9	1/25
18.	April 12	1/20

In all, eighteen injections were given and they usually were followed by a slight rise in temperature, pulse and respiration, and with considerable pain and swelling in the vicinity of the injection which would disappear in about three days.

The patient soon acquired a tolerance for the venom, which necessitated stepping it up rather rapidly until $\frac{1}{50}$ grain was given. After receiving nine doses of $\frac{1}{50}$ grain he acquired such a marked tolerance that very little reaction was obtained from the last two doses, and it was then increased to $\frac{1}{25}$ grain for four doses, after which the last dose, $\frac{1}{20}$ grain, was given, which caused death five days later. At times some of the treatments produced very marked reactions, causing at the site of injection considerable cellulitis, which would subside by the fifth day, while others were very mild in reaction.

The last injection, under careful aseptic conditions, was given in the biceps of the right arm about 2 p. m., April 12, and the following morning he had a marked epileptic seizure which was followed by six milder ones during the following eight hours. He was seen that day about 2 p. m., and found considerably exhausted from the seizures, temperature 100.5, pulse 84, respiration 24, and right arm considerably swollen and quite painful. An enema was given at once with good results, and scopolamin hydrobromid by the mouth every three hours.

April 14, temperature 99.5, pulse 80, bowels well open, arm quite painful and considerably more swollen than on previous day. Ice applied to arm.

April 15, temperature was 99.4, pulse 84, and swelling in arm about the same; but arm was very painful on the slightest movement; patient was taking nourishment fairly well and bowels were open. Veronal was given to produce sleep.

April 16, patient was very restless, and during the night the swelling had increased very rapidly and when seen at 9 a. m. it had extended up into the shoulder and right anterior chest wall. Temperature was 99.4, pulse 90 and pain very marked, and the heart was beginning to show the effects of an infection. Up to this time, owing to the low temperature and pulse, experience of previous reactions, and the very careful aseptic technic used in administering the venom, it was thought that the pain and swelling were due to an unusually severe reaction, but it was now evident that the patient was suffering from a rapidly progressing infection.

At 11 a. m., when the patient was transferred to the hospital, it was recognized that a fatal termination was probable, but multiple incisions were made. A quantity of extremely odorous pus liberated and drainage established. In spite of supportive treatment, however, death resulted on the morning of April 17.

A capsulated organism was found in the odorous material from the arm.

The crotalin ampules used for the last two injections were from a lot received April 7, 1913. Six of the remaining ten ampules from this lot were used for bacteriologic examination, with the result that an organism was isolated which, in its pathologic effect on laboratory animals, produced a condition similar to that observed in the patient, and was similar to the one cultivated from the pus from the patient's arm.

The laboratory findings set forth in the foregoing report show beyond a reasonable doubt that the death of this person was due to the presence in the crotalin solution of pathogenic bacteria. The chain of evidence implicating the crotalin solution as the cause of death is made almost complete by the finding in the remaining ampules of the same lot of crotalin solution of an organism similar, in its effect on animals, to the organism found in the pus from the fatal case.

After the death of this person from the crotalin injection other samples of crotalin solution were obtained from the same manufacturer and an organism was cultivated from those samples apparently identical in its effect on laboratory animals to that isolated from this fatal case.

The facts set forth above are evidence of the truth of the statement previously made that solutions of crotalin, as prepared and sold, are not always sterile; and that solutions which contain dangerous bacteria have been sold and death has resulted from their use.

As the preparation and interstate sale of solutions of venom come under the provision of the federal law approved July 1, 1902, regulating the manufacture and interstate sale of viruses, serums, toxins and similar products, it seemed that a study of venom solutions was a timely subject for the attention of the Hygienic Laboratory. Accordingly, samples of crotalin solutions, prepared by several different firms, samples of crotalin in tablets, and also a number of lots of dried rattlesnake venom were obtained from various sources. With these various materials cultures and certain animal inoculations were made. The samples of crotalin solution were bought in the open market and were such as would be obtained and used by any physician for the treatment of those conditions for which rattlesnake poison has been recommended. The solution was put up in sealed glass ampules, and, according to the labels, each ampule contained just one dose. The amount of venom in each ampule varied from $\frac{1}{200}$ to $\frac{1}{25}$ grain.

The samples examined were tested for sterility and for the presence of rattlesnake venom. The sterility test was made by planting 5 or 6 drops of the crotalin solution, usually in each of a pair of freshly heated glucose-broth fermentation tubes, which were then placed in the incubator at 37 C. (98.6 F.). With few exceptions, all of those tubes that showed a growth did so within twenty-four hours. This was usually manifested by clouding of the broth in the closed arm of the tube, accompanied by more or less gas formation, sometimes as high as 85 per cent. of the length of the tube.

Summarizing the results of the cultural work with the samples of crotalin solution, it is sufficient to state that there were tested for sterility ninety-five ampules of crotalin solution, prepared by four different firms, thirty-five of which (38.8 per cent), were found not to be sterile. It is proper to state that in the great majority of instances the contamination of the crotalin was found to be with anaerobic organisms, and to all appearances usually with a certain anaerobic bacillus.

In addition to the samples of crotalin solution reported on above there were examined twelve tablets of crotalin prepared and sold for hypodermic use. Every tablet examined was found not to be sterile, and while

the contamination was shown to be due to more than one organism, in each tablet, however, an anaerobic bacillus was obtained.

The test for the presence of venom was made by the subcutaneous inoculation of the contents of ampules from each lot of venom solution and of tablets. Guinea-pigs weighing about 200 gm. were used. As controls, guinea-pigs were inoculated with similar amounts of freshly prepared solution of venom from four different sources. In every sample of crotalin solution or tablets examined the presence of rattlesnake venom was shown by an effect on animals similar to that produced by the control inoculations of freshly prepared venom solutions.

An attempt was made in these tests to determine whether there was a variation in the activity of the solutions prepared by the same or different manufacturers or in the solutions prepared in the laboratory from different lots of crude venom. It was found that it was not possible without the use of a very large number of animals to determine the extent of variation, but it was definitely demonstrated that a variation in the solutions did exist. This variation was found to exist, not only in the solutions bought on the open market, but also in the solutions prepared from the four lots of crude venom from different sources. This is not unexpected in view of the previous reference to Noguchi's statement as to the variation in loss of weight in crude venom by drying, and shows anew the difficulty of preparing solutions of uniform venom content for equal weights of different lots of venom.

In the testing of the different samples of crotalin solution bought on the open market for the presence of crotalin, it was found that some of the animals died from infection with the contaminating bacteria found by cultural methods to have been present in the same lot of crotalin. For example, a guinea-pig received the contents of an ampule marked to contain 1/100 grain of crotalin. About twenty-five and a half hours after the injection the animal was found dead. At necropsy the body was found swollen and emphysema was present in the tissues of the neck. A sanious fluid was oozing from the puncture made by the injecting-needle. The abdomen was distended with gas and the liver was pale, mottled and showed areas of gas bubbles. The thorax was distended with gas. Cultures were made from the heart's blood in glucose-broth, and these cultures showed gas formation in the closed arm of the tubes. This fermentation was believed to have been due to an organism similar to that isolated from the crotalin solutions.

A few tests were made to determine the variety and number of bacteria in freshly prepared solutions of crotalin made from dried snake venom, but it was found, as has been previously shown by others, that the bactericidal properties of the venom interfered so much that the results were unsatisfactory. The same, of course, was true of the solutions of crotalin bought on the open market, but in these there was an additional complicating factor present. Most, if not all, of the solutions of crotalin sold contain trikresol as a preservative, and this acts as an additional restrainer of the growth of any bacteria that may be present in the solutions.

These two factors—the bactericidal power of the venom and the antiseptic power of the preservative—have an important and, it is believed, neglected, bearing on any sterility tests that may be made by the dispensers of crotalin solutions. I think it can be accepted that the dried venom always contains a great or less number of bacteria. This must be so when we consider the habits of the reptile from which the venom is secured and the methods used for obtaining it from the snake, and of drying and preserving after it is obtained. Such being the case, it is of course fully apparent that cultural tests, unless very carefully done, may not always reveal the presence of bacteria, which it has been shown may sometimes be harmful, when they are present. This possibility of there being present pathogenic bacteria difficult of detection, taken with the further fact that one of the effects of rattlesnake venom is to reduce or abolish the normal bactericidal power of the body-fluids, emphasizes the possibility of serious harm from the subcutaneous injection of solutions of rattlesnake poison.

To the two dangers just mentioned there should be added that of the favorable conditions for the growth in the area injected of anaerobic bacteria by reason of the local necrosis of tissue from the specific action of the venom thereon.

Subcutaneous injections of crotalin solutions have been recommended for a great variety of morbid conditions differing as widely in their etiology and pathology as epilepsy and tuberculosis. Among the conditions for which it has been advised may be mentioned epilepsy, lumbago, sciatica, neuritis, neuralgia, chorea, nerve exhaustion, bronchitis, asthma, hay-fever, insomnia, debility, pleurisy and tuberculosis, and there may be others. This is truly a formidable list for any therapeutic agency to control, and until more weighty evidence is produced than is at present available as to the value of the treatment for these so diverse conditions it would seem that the possible dangers inherent in the treatment itself should demand the utmost caution in its use.

THE INFLUENCE OF DIET ON HEPATIC NECROSIS AND TOXICITY OF CHLOROFORM *

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The destructive action of chloroform on the cells of the liver has long been recognized. Chloroform administered in sufficient quantity to animals by inhalation or by stomach causes necrosis implicating the center of each lobule of the liver, perhaps extending four-fifths of the distance from the central vein to the surrounding portal spaces. The poison exhibits a peculiar affinity for the hepatic cells, for, whereas parenchymatous cells of other organs such as the kidney and heart undergo injury exhibited by fatty degeneration, wide-spread necrosis is limited to the liver.

The occurrence of the same change in man is demonstrated by delayed chloroform poisoning, which occasionally follows the administration of chloroform for anesthesia. In association with excitement, delirium, coma and other symptoms referable to the nervous system, jaundice appears and increases in severity. Crystals of leucin and tyrosin in the urine may suggest advanced protein disintegration referable in the presence of jaundice to disintegration of hepatic tissue. After death the liver is enlarged and exhibits advanced necrosis beginning in the centers of the lobules.

* From the Pathological Laboratory of the Washington University Medical School.

Numerous observers following Strassmann and Salkowski have shown that administration of chloroform by inhalation or by mouth is followed by increased elimination of urinary nitrogen, sulphur and phosphoric acid. Howland and Richards, reproducing delayed chloroform poisoning in dogs, have shown that necrosis of the liver is associated with the increased elimination of sulphur and nitrogen which accompanies intense disintegration of body protein.

Chloroform was selected as an example of a poison capable of causing death and disintegration of hepatic cells, and experiments were undertaken to determine if protein disintegration might be modified by diet. These experiments were made on white rats since preliminary experiments determined that the fatal dose of chloroform for these animals could be determined with fair accuracy. Chloroform was diluted with two parts of paraffin oil selected as an indifferent substance absorbed with difficulty. In a preliminary experiment, a dose approximately 0.2 c.c. per hundred gm. of body-weight failed to kill; from 0.3 to 0.5 per hundred gm. killed in four days; 0.6 in two, and 0.7 in one day. Irregularities in the action of the poison were occasionally seen.

In the series recorded in Table 1, animals were given during four days (*a*) oats and cane-sugar, (*b*) meat alone or (*c*) fat (of beef) alone. On the three diets the average body-weight of each group of animals was maintained. Table 1 gives the length of life in days of the animals which died.

TABLE 1.—LENGTH OF LIFE IN DAYS OF ANIMALS WHICH DIED

Chloroform per 100 gm. c.c.	Oats and Sugar	Meat	Fat
0.1	*	3	2
0.15	3	4	1
0.2	7	3	2
0.25	*	2	2
0.3	4	3	2
Average duration of life	4⅔ +	3	1⅘

* Lived.

Animals which received carbohydrates survived, whereas all of those which received meat and fat died. Difference in toxicity is further shown by the average duration of life of animals which survived after the various diets. Microscopic examination of the livers of the animals which died showed that necrosis was scant in animals which had received a carbohydrate diet, implicating one-third or one-fourth of the radius of the liver lobule, whereas in animals which received meat or fat, necrosis affected from two- to three-fifths of the lobules, destroying at least half in all save two instances. Necrosis is found in all animals which died within four days after intoxication.

The foregoing experiments suggested that smaller doses of chloroform might demonstrate greater differences referable to diet. In view of the rapid fatality after administration of fat the minimum dose with this diet was placed at 0.02 c.c.; from previous experiments it was assumed that animals receiving carbohydrates or meat would survive this dose. After six days on the various diets animals which had received carbohydrates lost an average of 4 gm. each, those on meat maintained their weight and those on fat lost an average of 15 gm. each (Table 2).

Three times the fatal dose for animals receiving fat. (0.05 c.c.) is survived by animals which have received a meat diet, whereas five times this dose is survived by animals which have been fed on starch and sugar. The experiments are in accord with the observations of those (as Shaffer and Coleman for typhoid fever) who have shown that carbohydrates prevent the disintegration of body proteins. The average duration of life of those which survived furnishes further evidence of the protective action of carbohydrates and the injurious effect of fat. Advanced necrosis of the liver was found in those animals which died after receiving meat and fat, and serves as an index of the severity of intoxication.

TABLE 2.—LENGTH OF LIFE IN DAYS OF ANIMALS WHICH DIED

Chloroform per 100 gm. c.c.	Oats and Sugar	Meat	Fat
0.025	..	..	*
0.05	*	11	3
0.1	10	*	1
0.15	*	*	1
0.2	*	3	2
0.23	*	3	2
Average duration of life	10+	5⅔+	1⅕

* Lived.

Since animals of the foregoing series which received fat alone exhibited a loss of body-weight, the experiment was repeated by adding fat to a carbohydrate diet. To one group of animals beef-fat inseparably mingled with rolled oats was given; to another group which received as much oats as they would eat, cottonseed-oil (1 c.c. daily) was administered by mouth. The average body-weight in each one of these groups was slightly increased after five days. At the end of this time chloroform was administered (Table 3).

TABLE 3.—LENGTH OF LIFE IN DAYS OF ANIMALS WHICH DIED

Chloroform per 100 gm. c.c.	Oats and Sugar	Meat	Oats and Beef-Fat	Oats and Cottonseed Oil
0.05	*	2	2	*
0.1	*	5	*	2
0.15	*	3	2	2
0.2	*	3	2	2
0.25	*	*	2	4
Average duration of life	..	4¼+	2+	2½+

* Lived

The protective action of carbohydrates is conspicuously shown. The difference between the effect of meat alone and of fats combined with carbohydrates is not so great as the difference in the influence of meat and fat alone, the protection afforded by carbohydrates combined with fat being evident. Nevertheless the average duration of life among animals which survived exhibits the dangerous influence of fat.

CONCLUSIONS

The experiments furnish evidence that fat administered to animals and presumably stored in part in the liver increases the susceptibility of the organ to the injurious action of chloroform. In view of the well-known solubility and diffusibility of chloroform in fats, they suggest that the fat of the liver-cell determines the fixation of chloroform and occurrence of necrosis. The experiments with carbohydrates, on the contrary, furnish confirmation of the views of those who maintain that carbohydrates protect the body proteins from disintegration. Since necrosis of the liver with a variety of conditions in man, namely, toxemia of pregnancy, acute yellow atrophy of the liver, yellow liver, and poisoning with a variety of substances, exhibits close similarity to the necrosis of chloroform, the foregoing experiments suggest that a carbohydrate diet may be found to influence favorably the course of these diseases, whereas fat may have grave danger.

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WHAT IS A COMPLEX?*

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It may be assumed in psychology, just as in physics, that the law of cause and effect holds good. Every idea, impulse and feeling that appears in our consciousness, every action we perform, may be supposed invariably to have an adequate antecedent cause. None of the phenomena of either normal or abnormal mental life are to be regarded as simply the result of accident or of chance.

But the causes of many psychic phenomena are not self-evident. Though our conduct and opinions are popularly supposed to be the result of logical conscious thought and reasoning, and we are therefore expected to know why we believe or behave in any given manner, we frequently lack this knowledge. Many of the things we do and think we are utterly unable to explain; our explanations of many others are obviously unsatisfactory.

The truth of the matter is this: The causes of many of our activities, or the factors which help to cause them, lie outside the field of our consciousness, and are inaccessible to ordinary introspection. We therefore cannot hope to explain every conscious phenomenon as the result of some other conscious phenomenon, and if we wish to regard our psychic activities as conforming to the law of cause and effect, we must look for these unconscious causes and give them a place in our explanations.

Take, for example, such a matter as religion. We may safely assume that very few persons adopt a given form of faith simply and solely because they have studied the matter carefully, compared the relative merits and nonmerits of all religions, and finally arrived logically at a conviction of the superiority of the one in question. Few indeed can satisfactorily explain through introspection why they believe and behave as they do in such matters. Yet to even the lay mind there is no great mystery about it. For when, for instance, a person is a Protestant, it is ordinarily supposed that he was caused to be so by what is popularly termed his "bringing up." That is, it is assumed that a large number of experiences which he has undergone, and of influences to which he has been subjected, have somehow prejudiced him in favor of the particular religion he has chosen and are really responsible for his choice. This does not mean, however, that he *remembers* all these experiences or is clearly conscious that they are influencing him. On the contrary, it is supposed that the impressions having perhaps the greatest influence are the ones that relate to the moral and religious instruction he received in childhood, and these can be recalled only imperfectly, and many of them not at all. It is quite obvious, therefore, that if we are to explain *why* a person has accepted a given religion we have ordinarily to take into account such factors as those just mentioned. We have to assume, in short, that there exists a non-conscious biasing agent which is probably the most important factor in determining his choice.

If we now attempt to formulate some conception of this biasing agent — of this particular unconscious cause of belief — our results will be somewhat as follows: We shall expect it to be a very large group of memory traces, ideas and feelings connected in various ways with the central theme of religion. Some of these presumably had origin in the various incidents of early moral instruction from the parents, of intimate family life, of childhood visits to church and Sunday-school, or in different vague perceptions of things wonderful and mysterious. Others resulted from various allied experiences occurring throughout the person's later years. Some of the elements of the group are doubtless recalled frequently, others seldom, a great many others never. That is, the biasing agent consists very largely of unconscious ideas.

We may also suppose that because of their intimate correlation, the ideas and feelings belonging to the group have a tendency to exert their influence in conjunction, instead of as so many separate and distinct elements; that the person's choice of religion, and, we might add, his corresponding behavior, probably depend on the action of the group more or less as a whole and not on that of a separate few of its constituents.

Such a system of connected ideas, having a strong emotional tone, and displaying a tendency to produce or influence conscious thought and action in a definite and predetermined direction, is called a "complex." Complexes, then are sources of activity which, in part at any rate, lie outside the field of consciousness, and are at most only imperfectly accessible to voluntary introspection.

A great part of our conscious activities are determined in some degree by idea-groups of this kind. For not only in matters of religion, but in relation to practically all our chief emotional interests, complexes exist which influence, in their characteristic way, the trend of our thoughts, acts and feelings. Thus we have complexes concerning the different members of our families; complexes relating to each one of our important loves, hates, ambitions and recreations, and complexes concerning our politics, patriotism, pride, morality, etc. Each one of our instinctive tendencies, each of the deeply rooted cravings or impulses that have descended to us through long ages of phylogenetic development has, built up around it, a complex.

All our complexes are, so to speak, in a state of tension; each is ready to react in its own particular way as soon as the appropriate stimulus comes. And so numerous are our complexes that, with their readiness to react, we are seldom free from the influence of one or more of them. Almost any experience of daily life capable of awakening a considerable degree of interest or feeling is quite certain to stimulate some complex or other, and affect the content consciousness accordingly. All this, to be sure, may be not self-evidently true to most of us, but perhaps when we consider the examples of complex-action which are to follow, the foregoing statements will not appear unreasonable.

We may begin with a very simple illustration of complex-reaction. By a question of comparison between the Protestant and Roman Catholic religions, the religion-complexes of the adherents of both churches would be stimulated, and the reactions of a given individual would depend on which of the two kinds of religion-complex he happened to possess. If, for instance, he were a Catholic, and a question were brought up as to the value of the religious confession, all the arguments in favor of confession would probably impress him as being very potent and weighty, while any against it would be likely to seem to him unconvincing, no matter how logically they might be presented. In other words,

* From the Department of Neurology, Cornell University Medical College.
* Read before the New York Academy of Medicine, Section for Neurology and Psychiatry, Oct. 14, 1913.

his judgment on this question is predetermined long before the question comes up. The Protestant, on the other hand, would be inclined toward a prejudice in just the opposite direction. The very arguments that the Catholic regarded as so convincing he would consider weak.

The fact of the matter is this: In neither case does the individual escape the prejudicing influence of past impressions. Throughout early years both Catholic and Protestant had received from the sources he then regarded as most authoritative innumerable statements, implications and suggestions that Catholicism or Protestantism, as the case might be, was *the* religion superior to all others, and never to be questioned or doubted. But though the sources of these impressions may have lost their early stamp of authority, and though the impressions themselves have for the most part sunk below the level of conscious recollection, their influence to some degree remains. Any judgment involving directly or indirectly a comparison of the chosen religion with some other cannot be made altogether independently of the effect of this great group of impressions and feelings. In other words, a person's religion-complex tends to influence his judgment, fetter his logic, and — giving undue prominence to all arguments in harmony with itself, undue triviality to those in discord — operates toward making his final opinion on all matters connected with religion a foregone conclusion.

This brings us to another matter of much interest. Suppose in the question of the value of confession the Catholic has reached an affirmative conclusion. Now, he might realize that his "prejudices" were partly responsible for this conclusion, and frankly admit that such was the case. This would mean that he was in a sense aware that his religion-complex had directed the action of his mind. But, on the other hand, he might believe that his affirmative conclusion was determined solely by the merits of the case, and that he had not allowed his judgment to be biased in any way whatsoever. This, however, would ordinarily mean simply that he had not realized that his complex was acting, and that to logic and reason alone he had attributed results for which the complex was in part responsible; but in such a case he would not hesitate to point out a certain train of reasoning, and to explain, quite sincerely, that this was the cause of the final mental act, his conclusion. That is, he would manufacture a train of reasoning and accept it as the cause of his belief.

These synthetic, retrospective explanations of mental or physical acts are very common. Thus a teacher who has punished a child for some fault committed in school would explain that she had been actuated by a desire for the child's good, and might be quite sincere in doing so. Nevertheless, a revenge-complex built up by the many little annoyances he has caused her may quite possibly have been the most important basis for her action. A man who refuses to give money to a beggar feels that he does so because of an unwillingness to encourage laziness. In reality, his money-complex may have been the chief determinant of his conduct.

This sort of self-deception, which attributes a complex-determined opinion or action to some other and generally more acceptable cause, is known as *rationalization*. Its advantages are obvious. It permits the none too altruistic tendencies of some of our complexes to express themselves under the guise of activities having their source in thoughtful consideration and moral precept, and at the same time it allows us to hold to the pleasing opinion that our behavior is directed and controlled by purely intellectual forces instead of by what we slightingly term "impulse."

The extremes to which rationalization is carried are sometimes very great. This the following example may serve to show: Once when stopping in the country and having occasion to go to the house of a certain elderly lady, I was surprised to see a very valuable dog tied at her door-step. On my speaking of the animal, she told me it had strayed into her yard some weeks before, and that in this manner she had come to possess it. I asked, quite innocently, if she had been unable to find its owner, whereupon she replied with vigor that she had made no effort in that direction, adding that it would have been "a sinful flying in the face of Providence" for her to do so, because God would never have allowed the dog to stray into her yard if He had not intended that she should keep it.

The advantage of the rationalization in this case is quite apparent. For although perhaps no one else would have regarded a pious unwillingness to interfere with the plans of the Almighty as the real cause of this lady's conduct, she believed that it was, and thus she was enabled to give expression to her acquisition-complex and to maintain a comparatively easy conscience at the same time.

This example brings us to a matter of great importance, namely, conflict between complexes. In the case of this lady a conflict between her religion-complex and her acquisition-complex was narrowly avoided only by virtue of her rationalization. In by no means all cases, however, can such easy solutions of conflict be secured. This is particularly true of the conflicts which arise between the powerful complexes represented by morality, on the one hand, and by certain of the erotic and, so to speak, savage impulses, on the other. It is in conflicts of this kind particularly, that one of the two following things may occur:

First, the antimoral complex is overcome, is excluded from consciousness and becomes an unconscious, or *repressed complex*. In such cases — particularly if the repressed complexes are strong and the repression is maintained with difficulty — there sometimes occurs an exaggerated activity on the part of the repressing complexes. This is known as "overcompensation." Thus an exaggerated piety and morality may result after the repression of powerful temptations; an exaggerated sympathy may conceal repressed inclinations to brutality, or an exaggerated affection may cover unconscious complexes of hate.

Secondly, a sort of compromise may be effected between the opposing complexes by both discharging themselves in a single set of mental or bodily activities which somehow permits simultaneous expression of the discordant tendencies which the two complexes possess. This compromise may occur after a period of complete repression of one of the complexes (hence corresponding to a partial failure of a once successful repression), or may be formed at the time the conflict begins.

A simple example of compromise is as follows: At about bedtime one evening it suddenly occurred to a young woman that her husband was not getting sleep enough. Immediately she became worried, and she soon had herself wrought up to such a pitch that she could not banish this distressing idea. As a result she kept her husband awake until nearly 3 o'clock in the morning. Thus, in one set of activities she simultaneously expressed a love-complex and a hostile complex.

The most striking examples of compromise between complexes are furnished by the psychoneuroses. As an illustration the following brief extracts from the history and analysis of a case of compulsion-neurosis are perhaps in order:

Mrs. P., aged 25, married seven years, suddenly developed an obsession. The circumstances were as follows: She was sitting one morning at her window, gazing for no apparent reason at another young woman, a perfect stranger, who occupied a window across the street. Suddenly, without warning, Mrs. P. began to experience a peculiar feeling of uneasiness, sadness and fear. Then she made the remarkable discovery that she was unable to stop thinking about the woman across the way. And this state of affairs continued. No matter what she did, where she went or how she occupied herself the image of her neighbor remained fixed before her mind, continually absorbed her attention, and made it impossible for her to direct her thoughts to other things. She exerted every effort to control herself and to forget her obsession, but to no avail. Meanwhile she was subject to profound depression and anxiety, and became more and more fearful that if she could not stop thinking of the other woman she would eventually go insane.

This obsession lasted about a month and then gradually subsided. After an interval it reappeared, remained for a while, and again subsided. This was repeated a number of times during the four years before I made her acquaintance. Other obsessions and certain phobias, which need not be mentioned here, appeared from time to time, and the original anxious depression persisted.

In addition she developed two compulsions which are of much interest as examples of complex-activity, although they gave her no great distress. The first was a compulsive desire to alter her clothes. Thus at any time she was likely to be seized with the idea that her skirt did not fit her properly, and that she must try to improve it. Immediately she would be compelled to abandon whatever she was doing, rip up the garment in question, and make plans for its alteration. It was practically useless for her to resist this impulse for, if she did so, she would remain in an almost unbearable condition of tension and anxiety that could be dispelled only by her finally giving in. The impulse occasionally came on her as often as six or eight times in a single day. As a rule, however, it appeared at much longer intervals, and as soon as she gave way to it, she would be for a time relieved of any inclination toward its repetition.

A second impulse which was apt to appear in close temporal proximity to the first was an intense craving to be out in the rain. In stormy weather she would suddenly feel that she could not bear to be in the house, that she *must* go out and get wet. She would then leave the house in her ordinary street clothing, and, after sitting or walking in the rain until she was thoroughly soaked, would return home feeling greatly relieved and satisfied.

Now these obsessions, phobias and compulsive acts of which the patient complained were, like all psychoneurotic symptoms, produced by the activity of conflicting complexes. The morbid phenomena represented compromises formed between opposing affectively accentuated groups of ideas which, neither side being powerful enough to completely inhibit the action of the other, originated a set of activities in a new direction corresponding to a resultant of their combined forces. This, I think, will be made clear by the following extracts from my analysis of the case:

The complex which was mainly responsible for the foregoing symptoms had as its central element a strong desire for children. Much to her disappointment the patient had never been pregnant. She believed the fault lay with her husband. She had been examined a number of times and had been assured that nothing was found to account for her failure to conceive. On the other hand, her husband had been married before and his first wife, like herself, had never been pregnant. In addition, as the patient well knew, he had had a great many affairs with women not only before his first marriage, but even after his second, and it was therefore by no means improbable that his procreative power had been destroyed by venereal disease. On several grounds, then, she had reason to suppose that her marriage would remain a childless one.

In this way a conflict arose between various complexes. Her maternity-complex prompted her to do one of two things: either to divorce her husband — a thing she would have had no difficulty in doing — and marry some other man who could gratify her desire for children, or to be unfaithful to her husband in the hope that pregnancy might result. The latter course had the advantage of a compromise — she could have a child without giving up her husband — and her inclination to pursue it was reinforced by the reflection that he had not hesitated to be unfaithful to her.

On the other hand, her morality-complex, and the complex representing her love for her husband (of whom in spite of his shortcomings she was extremely fond) strongly opposed the tendencies arising from her maternity-complex and sought to repress them. This repression for a time succeeded. The objectionable ideas and inclinations belong to the maternity-complex were quite successfully excluded from the focus of her consciousness, and she believed herself to be more satisfied with her marriage than she actually was.

In time, however, the repression gave way. A compromise was formed which consisted in allowing the repressed psychic activities belonging to the maternity-complex to come before her consciousness, but in a new guise — namely, as obsessions.

The form taken by the obsession described was determined by the fact that the idea of the house across the street formed, as it were, a center about which some of the important conflicting thought-groups were constellated. The woman to whom this obsession referred was one whom Mrs. P. was compelled to envy. Until two weeks before Mrs. P.'s obsession developed this woman had displayed all the outward signs of pregnancy. The day the obsession developed was the first that this woman, having given birth to her child, had returned to her accustomed place in the window. One factor, then, in directing Mrs. P.'s thoughts to the house opposite was her pregnancy-complex. Another factor having the same effect was the complex relating to her husband's infidelity and to the idea of divorce, for she had recently learned that in this same house there resided a woman with whom the ever-active Mr. P. had been frequently indulging himself.

A third factor, which has not been referred to previously, was a well-developed homosexual complex. It so happened that the young mother was of a type that not only strongly appealed to the patient, but also included another girl with whom in former years she had had homosexual relations.

Mrs. P.'s inability to stop thinking about the woman across the street represents, then, her inability to banish completely from her mind the activity of those complexes that made her dissatisfied with her life and with her husband. For, as we have seen, this woman could readily stand as a symbolic figure for all those forces tending to draw Mrs. P. away from her husband. The obsession may therefore be translated somewhat as fol-

lows: "*If* I could forget my neighbor across the street I could be happy with my husband."

The patient's two compulsive desires are also compromise formations derived from her maternity-complex. The compromise consists in the substitution of an indirect and symbolic action for the direct action of this complex.

The analysis of these compulsions finally led to the following memory: During the patient's eighth year an older girl, who appears to have been a veritable storehouse of information and misinformation on the subject of sex, came to her and offered to demonstrate the method by which children were made. The patient, promptly accepting this offer, was instructed to lie down and lift her skirts. The older girl then lay on top of her and discharged a stream of urine against her genitals. "Getting wet" thus came to be a symbol of impregnation. Naturally, this symbolism received support from the patient's observing that rain seemed to have the effect of "making things grow," and, incidentally, rain became symbolic of a fertilizing substance.

The two compulsions — the desire to get wet and the desire to alter her clothes — came on after Mrs. P., having been caught in a shower accidentally, found that her skirt shrunk to such an extent that she had to rip it up and make it over before she could wear it again. In other words, these compulsions came on after an experience which was symbolic of insemination (getting wet by rain), and which was followed by a phenomenon analogous to one of the manifestations of pregnancy (namely, tightness of the clothing which suggests abdominal enlargement).

It is now to be seen that the patient's singular dissatisfaction with the fit of her clothes depended not on any fault possessed by them, but on the shape of the figure they covered, which never exchanged its virginal slimness for the temporary deformity of pregnancy. The act of altering her clothes was therefore a symbolic substitute for another action prompted by her maternity-complex, which would have changed the fit of her clothes by physiologic means operating from within.

The compulsion to get wet had the same significance. It was a symbolic substitute for that real exposure to fertilizing fluid for which she so longed (rain = semen).

Now lest these last examples of complex activity leave a wrong impression, I shall close by saying that *everybody* has complexes, and that the normal do not differ greatly from the sick in regard to what these complexes contain. Neurotics, to paraphrase Jung's dictum, are merely those who fall sick from the same complexes with which normal people struggle.

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Trained Leadership in Health Administration. — Health administration in this country lags largely for want of trained leadership. The call to public health is loud and clear. Preventive medicine is the watchword of the hour and the people are asking: "If disease is preventable, why is it not prevented?" They are not satisfied with promises, but demand results; this is as it should be. It is now recognized that the orthodox training leading to the degree of M.D. does not necessarily fit a man for the position of health officer. The average practitioner learns little concerning vital statistics, sanitary engineering, water purification, sewage disposal, disinfection, forensic medicine, and the making and breaking of health laws. The public health officer looks on disease in the large, and is less interested in the individual case, which is the chief concern of the practicing physician.—M. J. Rosenau in *Vermont Med. Month.*

ARTIFICIAL PNEUMOTHORAX

A SUMMARY OF FORTY-FIVE CASES AT BEDFORD

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The induction of artificial pneumothorax was first attempted at Bedford in January, 1913. At that time Dr. Cleveland Floyd of Boston demonstrated the technic of this procedure for us. Since then this operation has been used in forty-five cases, in many of which the patients were in desperate condition. A complete pneumothorax was obtained in twenty-one cases and a partial pneumothorax in eighteen cases, while in six cases we failed absolutely to find the pleural cavity.

Eight cases have given brilliant results. By this is meant marked reduction in temperature, in the pulse-rate and in the sputum output, gain in weight, etc. In hyperpyrexia the results have been most striking. In two such cases this was achieved within five days with two inflations, while in two other similar patients the same result was accomplished in four and five weeks, respectively. Previously in all these cases there had been pyrexia continuously for periods varying from three to eight months, and in addition the patients had suffered from great loss of weight, chills and sweats. In all of them the temperature has remained low or normal ever since, a length of time now varying from six months to one year. In three others we have arrested advancing and very active processes, and all three are now continuing to do well. One of them has lost his bacilli for a period now of three months. This is the only instance in our series in which positive sputum has become negative during an appreciable period of time.

In six cases we failed to introduce gas into the pleural cavity even after as many as ten attempts. In several we had rather strange experiences. On insertion of the needle we obtained very good and high negative oscillations in the manometer. As the nitrogen was allowed to flow into the chest, the intrapleural tension, according to the manometric readings, became less and less negative up to a certain point, and at this point we obtained readings that were equally positive and negative. In two such cases, as much as 1,800 c.c. were administered, and on physical examination we were surprised to find absolutely no change in the chest signs. In addition fluoroscopy and skiagraphy failed to reveal any evidence of pneumothorax. Probably in these cases the parietal and visceral pleurae were adherent and the needle went through into a bronchus and the nitrogen was lost. With the needle in the lung parenchyma we should have obtained very slight oscillations; but we obtained very good oscillations. This occurred many times, but we still persisted and inserted our needle in many different spaces, in one case going into the first and second right interspaces (this was never repeated in any subsequent case). In one of these cases the Brauer method was used—an incision down through one of the interspaces till the dull gray surface of the parietal pleura is laid bare—only to find the pleura a mass of adhesions and full of small pockets.

One point has impressed every physician connected with our institution—the persistent loss of weight in so many of our cases, and this, despite the fact that their subjective symptoms are so markedly ameliorated.

This has occurred in eighteen (85 per cent.) of our complete pneumothorax cases. Of the patients only four have regained all of their loss, while the rest are still many pounds minus the weight they possessed when treatment was instituted, though many have regained some of their loss. Strange to say, in four of these cases the patients began to put on flesh only after cessation of this operative procedure.

In regard to dosage every case is a law unto itself. Several factors always influence us. First and foremost is the patient's comfort. As soon as he complains of the least dyspnea or pain we immediately stop the flow of gas, irrespective of the amount of nitrogen injected. Secondly, we depend on the manometer—we never let gas flow into the chest till we have good oscillations. Occasionally we have proceeded cautiously in the presence of an initial low positive reading, and in these cases, after inflations of a small amount, we have been gratified at the next attempt on finding high negative intrapleural tension, adhesions in the meantime probably having given way. In the initial inflations we stop while the readings are still negative. On subsequent occasions we wait for low positive readings unless very large amounts have already flowed in. With the first positive reading, however, as a rule we discontinue the inflation. For a long time, though, in some cases we continued inflating till a moderately high pressure was obtained. At present we stop with a low positive reading in all of the later inflations.

At first we inflate from every two to five days. In a few cases we have administered nitrogen every day for three days till a fairly good pneumothorax was obtained. Small doses frequently repeated seem to be the best method by far. With a complete pneumothorax we wait from ten days to a month before reinflation, keeping watch all the while on the rate of absorption by means of physical examination, fluoroscopy and an occasional roentgenogram. We are influenced in determining the intervals by the following additional factors: the position of the heart, the patient's comfort, the presence of subcutaneous emphysema and the temperature range. In regard to the last-mentioned we inflate as soon as we see the curve rising again; with regard to comfort, as soon as cough and expectoration increase. Expectoration is frequently increased after the initial inflations with a diminution in cough. This applies particularly to cases in which there are large vomicae. In these cases the patients expectorate larger amounts at one time and with greater ease. In the others cough and expectoration seem not to be influenced so much. In quite a few cases expectoration has fallen as low as from 15 to 25 gm. in twenty-four hours, and still the cough has continued to be severe for a long time. In the presence of subcutaneous emphysema we never reinflate, waiting for its complete subsidence.

In our cases the fluoroscope has been of particular value, especially in the detection of small effusions. The only sign of this usually obtainable in our series has been succussion; flatness, absence of voice and breath-sounds being obscured by the pneumothorax. Occasionally succussion has not been obtained. Frequently then in fluoroscoping our patients we have been surprised to find fluid, that is, a dense homogeneous shadow at the base presenting a horizontal upper surface that tilts to one side or the other as the patient bends his trunk and breaks into ripples when he shakes himself. In nine cases of effusion—so far we have had fifteen cases, in which we had obtained a complete pneumothorax in twelve—we withdrew a few centimeters of the fluid and inoculated guinea-pigs. In six of these cases the pigs developed tuberculosis, and on necropsy tubercles were found in the organs; but in only one of them did we recover tubercle bacilli. Smears made from the fluid at the same time that it was withdrawn have all proved negative.

Some of our cases of effusion have now persisted nine months. In six of these the appearance of the effusion has been preceded or immediately followed by a rise in temperature, even to 103 and in one case to 104. For some time past we have suspected fluid in our gas patients, when suddenly they would develop fever after having had a long apyretic course. The high temperature usually persists for a couple of weeks, slowly coming down to normal. The effusions develop after the pneumothorax has existed for at least two or three months.

In eight cases there has been an increase in the signs in the untreated lung. Five of them showed a small amount of tuberculosis in the other lung when treatment was begun; the rest developed entirely new processes. Treatment was discontinued in all but two of these cases; one patient developed a pleuritic rub at the other base, and the other begged us to recommence procedures, as he felt better while it was being given, though we never succeeded in obtaining more than a partial pneumothorax. It is gratifying to state that this patient has gained weight and improved very much in health and strength since we resumed treatment; of the others one died and two are *in extremis*, while the rest are doing better since we stopped inflating their chests.

Persistent tachycardia compelled discontinuation in another case. The pulse-rate was as high as from 140 to 160 beats per minute. This had existed before treatment. Roentgen-ray and chest findings seemed to show a torsion of the heart and large blood-vessels. This was a case of a complete pneumothorax with the right cardiac border in the right nipple line. The patient, a woman, died a short time ago.

Seven hemorrhagic cases have been treated in our series. In four there have been no recurrences during a period now varying from six months to one year. In another we were partially successful as the patient has only occasionally spit blood since then; but since establishing a partial pneumothorax it has been found impossible to proceed with treatment on account of the formation of adhesions as made out by skiagraphy. In another we failed to find the pleural cavity. Another case has been treated too recently to know what the results will be.

In two cases in which even the smallest hemoptyses had never been known to occur, there were small hemorrhages of from 3 to 6 ounces for the first time after the third and fourth inflations. These never recurred, inflations having been continued ever since, a period now of several months.

Subcutaneous emphysema has occurred once in each of twenty-seven cases, but more than once in only eight cases. The greatest number of occurrences of this was four, and this in but one case—an incomplete pneumothorax. This cutaneous emphysema usually occurs in the first inflations, very seldom in their later attempts. Severe coughing after inflation appears to be the most important and frequent cause, though occasionally it appears when there has been barely any cough and when

it has been least expected. Another cause is manipulation of the needle while in the chest, causing trauma of the pleura and overlying tissues. Some of these emphysemas are quite marked, reaching upward into the neck, on many occasions going into the abdominal wall, and in three cases going even into the scrotum and thighs of the corresponding sides. These patients are very uncomfortable, but seldom for more than twenty-four hours. At present we strap all chests after inflation to avoid this complication, but occasionally it occurs despite this precaution.

In a few cases there has been considerable dyspnea, even after small amounts of nitrogen. This, however, has happened only in cases with bilateral lesions. Because of this, treatment has been discontinued.

As a local anesthetic novocain (1 per cent.) and epinephrin (1 : 6,000) are employed and always rather liberally administered. At least 30 minims are used for each puncture of the needle. After anesthetizing the skin over the site selected the novocain is slowly injected, the needle being pushed in right up to its hilt. Then a small incision is made with a well-guarded cataract knife through the derma, to allow the easy entrance of our Floyd needle.

A pneumothorax occurred in the opposite pleural cavity in one patient. This was a desperate unilateral case with marked consolidation of the right lung. After many attempts we succeeded in establishing a partial pneumothorax, and with this there was a marked improvement in the patient's condition. Her temperature dropped 2.5 degrees in three days and remained under 100 (by rectum) for three months, except for very few short rises in the curve. With this there was a gain of 8 pounds in weight. At the end of the time mentioned a roentgenogram revealed a small pneumothorax at the other base confluent with the one present on the diseased side. Fluoroscopy and physical diagnosis confirmed this. The area at the opposite base increased, lifting the heart up. Temperature rose again, and a lesion developed in the left lung and spread rapidly. The patient died a few months later. This was a desperate case to begin with, and we achieved temporary success.

Pleural shock has occurred once in over 400 inflations. This happened shortly after the needle had been inserted and before the gas had been allowed to flow. Under immediate stimulation the patient recovered. Since then this patient has done badly and is now *in extremis*.

Hemorrhages from the ear occurred in one case. They were quite severe and first occurred after the induction of a partial pneumothorax. They occurred on the same side as the pneumothorax. The patient had an old perforation. Our laryngologist reported it as a tuberculous process developing in an old case of chronic otitis media purulenta with ulceration resulting. The patient became alarmed at these hemorrhages and refused further treatment.

Tuberculous meningitis occurred in a case in which only a few inflations had been given. He had a few prodromal symptoms when treatment was begun, but they were not marked enough to deter us. He died in a few days.

One sudden death took place. This was several days after the first and only inflation. Subsequent inflation had been postponed because of the presence of subcutaneous emphysema. Necropsy revealed a solitary tubercle the size of a large pea in the right lateral ventricle, and another as large as an olive in the right cerebellum. The only symptoms referable to this prior to death had been severe headache and slight vertigo.

Nine deaths occurred. Four have previously been referred to: a case of tuberculous meningitis, a case of solitary brain tubercles, a case of torsion of heart and large blood-vessels, and a case of leakage through the mediastinum. Of the rest two patients had a complete pneumothorax, but continued to do badly after a temporary improvement in condition, one patient dying as a result of tuberculous laryngitis and tuberculous enteritis, the other as a result of a cardiac dilatation. One died in New York several months after treatment had been instituted here, but she is classed among our six failures. The other two were incomplete cases, very desperate when treatment was begun, in which the patients died despite our endeavors with nitrogen; yet even in them we achieved a brief amelioration of symptoms.

In one death we secured a necropsy. It was a bilateral case in which we had obtained a complete pneumothorax on the worse side—the left. This lung was compressed against the spinal column and posterior mediastinum, leaving the entire left pleura a free cavity barring a few adhesions at the apex, and a firm coarse band running from the pleura to the fourth intercostal space. In this pleura was a small amount of fluid, about 3 ounces, never known to exist ante mortem (this case has not been counted among our cases of effusion). The left parietal pleura was smooth and thickened. The left lung was about a third of its normal size, solid, compressed and carnified. The pleura over it was in some places thickened and had the appearance of icing on a cake. On section there were large conglomerate tubercles, separated by compressed and thickened pulmonary tissue. At the apex there were more evidences of activity and also several small vomicae full of cheesy material. These vomicae were compressed.

Microscopically there was marked fibrous change in this lung in the interstitial tissue, and only the faintest evidence of pulmonary alveoli. The whole picture gave an impression of scar formation and granulation tissue. The right lung was extensively infiltrated, and its only normal portion was the lower lobe, which appeared somewhat congested.

The heart was enlarged, the left ventricle hypertrophied, the right ventricle markedly dilated and its walls much thickened. The heart was pushed considerably to the right, most of its bulk appearing to the right of the spinal column, but still the descending aorta and esophagus were normal in position.

In addition there was extensive tuberculous ulceration in the ileocecal region, recent in origin, cholelithiasis, and parenchymatous degeneration of all the viscera. Death was due to circulatory failure on account of dilatation of the right ventricle.

I wish to thank both the attending medical staff and the resident physicians of our institution for many kindnesses shown in the drawing up of this summary.

Lack of Morbidity Statistics.—Morbidity reports, particularly of the communicable diseases, show the location of cases which constitute foci from which disease may be spread to the well. The collection of morbidity reports thus makes it possible to know where to take the proper precautions for the protection of persons who may be exposed to a given disease, and therefore acts as a prophylactic measure for the community at large.—W. C. Rucker, M.D., in *Pub. Health Rep.*

THE INTRASPINAL INJECTION OF SALVARSANIZED SERUM IN PARESIS

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This is a preliminary report of the treatment of general paralysis of the insane with salvarsanized serum.

The method used is that described by Swift and Ellis[1] and first used by them in cases of tabes. It is an attempt to influence the disease by introducing serum from a salvarsanized patient into the cerebrospinal fluid. The ordinary dose of salvarsan is injected intravenously, and one hour later a quantity of blood withdrawn (about 40 c.c.) sufficient to produce 12 c.c. of serum. The serum is heated for half an hour at 56 C. (132.8 F.) and diluted to 30 c.c. with normal salt solution. This mixture is then injected by gravity into the spinal canal after the withdrawal of an equal amount of fluid. The patients are then kept in bed for at least twenty-four hours.

It is not proposed to discuss the rationale of the method, but only to give a brief outline. The work of Camp[2] shows that salvarsan injected intravenously does not result in the presence of arsenic in the cerebrospinal fluid. The chorioid plexus in the ventricles has a selective activity, not allowing a filtration into the ventricles of all substances in the blood-serum. Hence it is necessary to use local therapy in reaching the spirochetes in the cortex. Salvarsan injected into the spinal canal causes too much irritation, but salvarsanized serum is well tolerated. It has been shown (Swift and Ellis) that the salvarsanized serum is destructive to spirochetes. Evidence of this has been obtained by cultural methods and from clinical data in the treatment of a syphilitic infant with serum from a salvarsanized patient. The maximum effect of the serum is reached one hour after the salvarsan injection, and is increased by heating at 56 C.

The cases dealt with in this paper are the first of a series being treated, and enough time has now elapsed to warrant a preliminary report. An attempt has been made to select early cases, but unfortunately they are usually of considerable duration before commitment to a state hospital. The earliest case of the series was of five months' and the most advanced of three years' duration. They were all in the second stage of the disease, none having reached the paralytic stage. It is worthy of note that none of these cases had a remission before treatment.

The injections were given at intervals of two weeks until each patient had received three treatments. In Case 2 four injections were given. A cerebrospinal fluid examination was made and Wassermann reactions determined before the beginning of treatment, and at the time of injection blood and fluid were taken for subsequent examination. For example, at the time of the second injection the Wassermann report would be on the serum collected one hour after the second dose of salvarsan, and the Wassermann report on the fluid would be two weeks after the first intraspinal injection of serum and about five hours after the second dose of salvarsan.

1. Swift and Ellis: New York Med. Jour., July 13, 1912.
2. Camp, C. D.: Jour. Nerv. and Ment. Dis., 1912, xxxix, No. 12.

In all cases salvarsan was employed in preference to neosalvarsan. The powder, 0.6 gm., was dissolved in 30 c.c. of water neutralized with 25 drops of 15 per cent. sodium hydroxid solution and enough warm, freshly distilled water added to make 250 c.c. The solution was then filtered through a sterile filter-paper and given intravenously.

Out of the twenty-two injections very few severe reactions have followed the administration of the salvarsan. In some of the cases there was a slight chill and the temperature rose to 99 F. One patient, T. A. (Case 5), with his first treatment had a most severe reaction. Within an hour his teeth chattered and his face and arms became covered with large red blotches. In this case sterile tap-water of about a week's standing was used in place of the freshly distilled water. In the two following administrations water distilled the day of injection was employed, and there was little or no reaction.

If two or more injections were given in the same vein it was sometimes found very difficult, or even impossible, to give a third treatment in the same vessel. The vein became hard and cord-like and its caliber became much smaller. After a few weeks, however, the veins softened somewhat and no permanent obliteration of the vessels has been found.

There has been no reaction following the spinal injections. In two cases the temperature was taken every two hours for the first twenty-four hours, but showed only a slight drop in the temperature. At no time has there been any evidences of meningeal irritation. Subjective symptoms could not be recorded very well because of the patients' mental state. As a rule, it was difficult to keep them in bed the full twenty-four hours following the injection.

CASE 1.—B. G., man, aged 37, printer, married, admitted Aug. 20, 1913, had a negative family history. Drinking habits were moderate; he was very seldom intoxicated. Syphilis was denied, but gonorrhea was admitted. Duration of mental trouble was eight months. The first symptoms noticed were ideas of grandeur. He trembled a great deal and had hesitancy of speech.

He was admitted to the Napa State Hospital, March 26, 1913. The examination at that time showed speech defect, facial tremor, lively knee-jerks and slight ataxia. The pupillary reactions were sluggish. The mental confusion disappeared and he was quite clear at the time of his transfer to the Agnew State Hospital, August 20.

September 24, neurologic findings were as follows: No facial paralysis. Fine tremor of the lips and defective articulation. Fine tremor of the hands, but not ataxic. Slight swaying in Romberg's position. Pupils equal; react in narrow limits to strong artificial light and promptly in accommodation. Knee-jerks and ankle-jerks slightly exaggerated. No Oppenheim or Gordon. A Babinski on the left; none on the right. Pseudo ankle-clonus on each side. Wassermann blood examination + + +, Wassermann fluid + + +, Noguchi butyric acid test +, cell-count 46 per cubic millimeter.

The patient's mental condition at this time could be summarized as follows: A feeling of well-being and a lack of concern about his present trouble. Consciousness clear. Delusions or hallucinations not elicited. He lacks initiative in conversation, but gives brief replies to questions. Memory is not clouded and he acquires new information readily.

Oct. 1, 1913, he was given salvarsanized serum; this was repeated again in two weeks. Wassermann serum examination at this time + + +, 27 cells per cubic millimeter, positive Noguchi and fluid Wassermann + + +. Two weeks later the third injection of salvarsanized serum. The cerebrospinal fluid shows positive Noguchi and + + + Wassermann. Cell-count was not made.

Following this treatment the patient was a little stronger physically and was better able to care for himself. He is still slightly euphoric and rather childish in manner. The mental examination is the same as above noted. His memory is especially good. The neurologic examination shows but little change. The facial tremor is still present; there is ataxia of the hands and some swaying in Romberg's position. The pupils react to light and accommodation. Both knee-jerks are exaggerated; the left greater than the right. Babinski on the left, none on the right.

One month after the last treatment there is still no change in his mental condition. He is very childish and at times euphoric and again slightly depressed and emotional. The neurologic examination shows no improvement in his physical condition. Dec. 1, 1913: Serum Wassermann + + +, fluid Wassermann + + +, cell-count 13 per cubic millimeter, Noguchi positive.

Summary.—The patient's condition has not improved much since the treatment either mentally or physically. The speech disturbance and facial tremor are not so pronounced. There has been a reduction of the cell-count from 46 to 13. The Noguchi butyric acid test and Wassermann of the blood and fluid all remain positive.

CASE 2.—F. N., man, aged 37, saloon-keeper, admitted to the Agnew State Hospital May 1, 1913, had been affected by his trouble about one year. First symptoms were convulsion, restlessness, destructiveness and excitement. Previous to commitment he had five injections of salvarsan, and also potassium iodid and mercury. At the time of admission he seemed to be in an advanced stage of organic dementia. He was euphoric, speech was hesitating, and orientation and judgment were much disturbed. He continued in this condition, and required hospital treatment. Much of the time he was in bed because of untidy habits.

Sept. 5, 1913, cerebrospinal examination: cell-count 61 per cubic millimeter, Noguchi butyric acid test positive.

September 23: fluid Wassermann + + +, serum Wassermann + + +.

September 24, neurologic examination: no facial palsy; tremor of the lips and tongue pronounced; speech difficult; no ataxia of the hands, but an unsteady gait; pupils unequal, reacting in accommodation and to light very slightly. Fundus examination negative. Biceps-jerks equal, triceps absent. Knee-jerks and Achilles tendon-jerks absent. No plantar reflexes. Hearing defective; loudly spoken words heard in the right ear, but not in the left.

The patient's mental condition was characterized by mild euphoria. Memory for recent events was very poor and confused when anything complicated was attempted. October 7, 0.6 gm. of salvarsan was given intravenously, followed later by intraspinous injection of salvarsanized serum. This was repeated in two weeks. At this time the serum gave negative Wassermann, fluid Wassermann + + +, cells 77 per cubic millimeter, Noguchi positive.

Two weeks later treatment was repeated. At this time the blood-serum gave a slow negative Wassermann, fluid Wassermann + + +, cells 12 per cubic millimeter, Noguchi positive.

Six days following this injection it was noted that the patient was better able to care for himself. He was not so untidy. He was oriented in place, but not in time. Memory had improved so that he remembered many daily events. Neurologic condition had improved. He was more steady on his feet and there was less speech disturbance; otherwise it was the same as before treatment. November 19, the fourth injection of salvarsan, followed by salvarsanized serum, was given. Serum at this time gave negative Wassermann, fluid Wassermann + + +, cells 14 per cubic millimeter, Noguchi positive.

The patient's mental condition steadily improved. Two months after the treatment began he was able to do some ward work and took a very active interest in everything in his surroundings. Memory was much better. He could remember the nurses' names and give a recital of events occurring several days before. The neurologic findings were much the same. Knee-jerks were still absent. Pupils were unequal and sluggish to light. There was some swaying in Romberg's position and ataxia of the hands.

December 22: serum Wassermann —, fluid Wassermann + + +, cell-count 3 per cubic millimeter, Noguchi positive.

Summary.—In this case there has been a marked improvement in the mental condition, but no change of importance physically except a reduction of the cell-count from 61 to 3, and less facial tremor and speech disturbance. The Wassermann fluid remained positive.

CASE 3.—N. N., man, aged 32, millman, admitted to the Agnew State Hospital May 26, 1913, with mental trouble of three weeks' duration, had been restless, violent, destructive and had had extravagant delusions. The physical examination at this time showed nothing noteworthy except sluggish pupillary reactions, speech defect and slightly exaggerated knee-jerks. The mental symptoms were loss of memory, elation and delusions of wealth.

September, 1913, cerebrospinal examination: fluid clear, cell-count 35 per cubic millimeter, Noguchi butyric acid test positive. October 20: serum Wassermann + + +, fluid Wassermann + + +.

Five months after admission the patient began to show a physical failure and mental decline. Speech disturbance increased so that his remarks were quite unintelligible. Ataxia became pronounced. There was some incontinence of urine.

November 5, 0.6 gm. of salvarsan given intravenously, followed later by intraspinous injection of 40 per cent. salvarsanized serum. November 11, neurologic examination: No facial palsy; eye movements normal; a pronounced tremor of the muscles about the mouth and eyes; tongue tremulous; slight ataxia of the arms. He swayed in Romberg's position. Marked speech disturbance. Reflexes: Left pupil larger than the right; both reacted in accommodation; left reacted to light in narrow limits and the right reacted very sluggishly. All the tendon reflexes present. No Oppenheim, Gordon or Babinski. Incontinence of urine.

The patient was very silly in manner. He laughed whenever spoken to and had difficulty in understanding simple remarks. Orientation was correct. There were no delusions or hallucinations. Memory for recent events was much impaired. November 19, the second injection of salvarsanized serum was given. At this time serum Wassermann was + + +, fluid Wassermann + + +, cell-count 24 per cubic millimeter, Noguchi positive. A few days after this injection it was noticed the patient was not so irritable as he had been at one time, but his mind was more clouded and directions had to be repeated several times. He had had no incontinence of urine for the past three days.

December 3, third injection of salvarsan was administered. On this date serum Wassermann was + + +, fluid Wassermann + + +, cells 5 per cubic millimeter, Noguchi positive.

Three days following the last injection the patient had some incontinence of urine, but had been untidy on only one occasion since then.

Jan. 5, 1914, the patient was somewhat brighter than he was a number of weeks before. He showed a greater interest in his surroundings and made an attempt to do some work. He understood quickly what was said to him, but had difficulty in formulating his replies. Memory was not much improved. He was slightly euphoric and did not appreciate the seriousness of his condition.

The physical findings were unchanged. There was a pronounced speech disturbance, facial tremor, coarse tremor of the hands and unsteady gait. Since the last examination the right knee-jerk has been lost, but the left was still present. Pupillary reactions were sluggish. Serum Wassermann was + + +, fluid Wassermann + + +, cell-count 4 per cubic millimeter, Noguchi positive.

Summary.—No mental improvement was observed after treatment. Cell-count was reduced from 35 to 4. There was recovery from incontinence.

CASE 4.—L. S., man, aged 45, carpenter, admitted to the Agnew State Hospital, April 12, 1913, with negative family history, had had delusions of wealth and a boisterous manner for about one month. At the time of his admission the

neurologic examination showed nothing noteworthy except sluggish pupillary reflexes. The mental condition was characterized by elation, restlessness, flight of ideas and delusions of grandeur.

September 6, cerebrospinal fluid examination showed 72 cells per cubic millimeter, and positive Noguchi butyric acid test.

November 5, serum Wassermann was negative, fluid Wassermann + + +.

The patient's condition continued much the same and the neurologic examination remained negative.

November 13, he was given 0.6 gm. salvarsan intravenously followed by 30 c.c. of 40 per cent. salvarsanized serum intraspinally. This treatment was repeated in two weeks. At this time the serum Wassermann was +, fluid Wassermann + + +, cell-count 56 per cubic millimeter, Noguchi positive. Two weeks later the third injection was given, at which time a serologic examination was not made.

Jan. 12, 1914, neurologic examination failed to reveal any change. The pupillary reflexes were sluggish, the knee-jerks slightly exaggerated, but there was no ataxia, speech disturbance or tremors. The mental condition had not improved. The patient was very destructive, mischievous, distractible in thought and decidedly euphoric. Cerebrospinal fluid examination: Cell-count 8 per cubic millimeter, Noguchi positive, serum Wassermann +, fluid Wassermann +++.

Summary.—This case has shown practically no change in the mental or physical condition. There has been a reduction of the cell-count from 72 to 8. Two months after the treatment began the Wassermann reactions remained positive.

CASE 5.—T. A., man, aged 42, laborer, admitted to the Agnew State Hospital, Oct. 18, 1913, had a negative preliminary history except that he had had a slight head injury thirteen years before. The mental trouble was of three months' duration. It began with a facial tremor followed by fainting-spells; later there was severe headache with dizziness and vomiting. Finally an attack of extreme confusion, during which he did not recognize his family, led to the patient's commitment. The preliminary examination showed unequal and sluggish pupils; slow stuttering speech and exaggerated tendon reflexes. Cerebrospinal fluid examination revealed cell-count 11 per cubic millimeter, Noguchi positive, serum Wassermann +++, fluid Wassermann +++.

November 19, 0.6 gm. of salvarsan was injected intravenously followed by 30 c.c. of 40 per cent. salvarsanized serum intraspinally.

Six days following this injection there was no marked change in the patient's condition, but he was not so restless and the mental confusion was not so apparent. He was easily excited and could not carry out complicated directions. Neurologic examination was the same as before.

December 3, the second treatment was given. Blood Wassermann was +++, fluid Wassermann +++; the fluid was a light yellow. A cell-count could not be made because of the large number of red cells.

Two weeks later the third injection was given. Fluid Wassermann was +++, cell-count 7 per cubic millimeter, Noguchi positive.

Jan. 12, 1914, two months following the beginning of the treatment, little change in the patient's mental condition could be observed. He was not so restless, but was still easily confused. Memory could not be tested in detail. Neurologically there was no change since the last examination. Serum Wassermann was +++, fluid Wassermann +++, cell-count 10 per cubic millimeter, Noguchi positive.

Summary.—The slight improvement seen in this case is not more than might occur with the ordinary hospital treatment. The Wassermann reactions have not changed and the cell-count has shown no reduction.

CASE 6.—E. W., man, aged 37, was admitted to the Agnew State Hospital, Sept. 30, 1913. Family history was negative and early life uneventful. He had been a moderate user of alcohol. Mental trouble began three years before. The first symptoms were violent conduct and at times suicidal tendencies; there were also delusions of persecution. He was a patient in the Napa State Hospital for one month, during which time he developed paralysis of the right arm and aphonia. He was taken home, and this gradually disappeared.

Physical examination at the time of admission: Fairly well-nourished man. Chest and heart negative. Neurologic examination: Eye movements normal; face symmetrical; tremor of the left side of the mouth and deviation of the tongue to the left; no tremor of the hands, and no ataxia. Reflexes: Pupils equal; left reacted slightly to light; the right inactive; both reacted in accommodation. Biceps-jerks present and equal. Abdominal reflexes present. The left knee-jerk absent, the right very much diminished. No Oppenheim, Gordon or Babinski, and no Romberg. Mental condition characterized by a dull, listless, emotional state. Consciousness clear. Patient disoriented in place and for people, but oriented in time. Handwriting unsteady. No hallucinations or delusions. Memory for recent events much impaired. Thought elaboration much disturbed.

October 6, the patient had a seizure during which he became unconscious; there were tremulous movements of the muscles of the body. Following this he was much confused for a day. Further inquiry revealed the fact that convulsions had occurred at frequent intervals during the past two years.

November 22, the first injection of salvarsanized serum was given. This was repeated in two weeks. At this time cerebrospinal fluid examination showed 15 cells per cubic millimeter, Noguchi positive, fluid Wassermann +++, serum Wassermann +++.

December 19, the third injection, Wassermann examination of blood was not made. Fluid Wassermann was +++, cell-count 28 per cubic millimeter, Noguchi positive.

Jan. 19, 1913, the patient's mental condition had changed very little. He was apathetic and indifferent and frequently laughed in a silly manner. Memory was much impaired and he was disoriented both in time and in place. There was a tendency to romance. Neurologic examination showed that facial movements were normal; tongue protruded slightly to the left. There was no tremor or ataxia, and no speech disturbance. Reflexes: The pupils were very sluggish to light, but reacted in accommodation. Abdominal reflexes were present. Both knee-jerks were active, the right greater than the left. There was no Gordon, Oppenheim or Babinski. The patient had not been untidy for five weeks. Preceding this time he would be untidy about three days out of every three weeks.

Cerebrospinal fluid examination revealed a cell-count of 17 per cubic millimeter, serum Wassermann +++, fluid Wassermann +++, Noguchi positive.

Summary.—The only change in the neurologic findings of this case is the altered knee-jerks. At the preliminary examination the left knee-jerk was absent, the right diminished, and now they are both very active. The cell-count has been reduced from 118 to 14. No change has occurred in the Wassermann reactions. There is no mental improvement.

CASE 7.—I. D., aged 36, business man, was admitted to the Agnew State Hospital, Sept. 13, 1913. Family history showed insanity on the maternal side, the mother and uncle having been insane. The patient had syphilis eight years before, for which he had received quite efficient treatment. He had been married four years. The wife denied miscarriages. It was noticed that her pupils were unequal. Four years before the patient had had a discharging ulcer on the scrotum, which yielded to one injection of salvarsan. A scaly rash on the body also disappeared at this time.

In November, 1911, he suddenly developed diplopia. At this time he was given an injection of salvarsan and the eye trouble quickly disappeared. In May, 1912, it returned again for a few weeks. There was a positive Wassermann in May, 1911.

The present mental trouble began one year before admittance. The patient suddenly became confused, talked in a rambling manner and after a few hours became very drowsy. This somnolent state lasted for some time. He could be aroused, but would immediately fall asleep again. There was considerable clouding of consciousness for a number of months.

Blood and spinal fluid gave negative Wassermann reactions, and the cell-count was negative sometime during the summer of 1912. At this time there were no neurologic findings; the pupils were equal and reacted to light and in accommodation. Patient's mind became clearer, but it left him irritable and excitable; memory was very poor for past events.

Improvement continued and in December, 1912, he was able to go to a health resort. In the summer of 1913 he was rather erratic and required a special nurse. Delusions of wealth developed and he had outbreaks of irritability, necessitating his commitment to the hospital.

Neurologic examination, Oct. 14, 1913, revealed facial movements symmetrical, eye movements normal, no nystagmus, and no tremor of the face or tongue. The tongue protruded in the median line. There was no tremor or ataxia of the hands, and no Romberg. Pupils reacted to direct and consensual light stimulation and in accommodation. Knee-jerks were present and equal. There was no Gordon, Oppenheim or Babinski. Blood Wassermann was negative, fluid Wassermann positive, cell-count 74 per cubic millimeter, Noguchi positive.

October 16, the patient was given 0.6 gm. of salvarsan intravenously followed by an intraspinal injection of salvarsanized serum. This was repeated in two weeks. At this time the cell-count was 15, Noguchi positive, serum Wassermann negative, fluid Wassermann negative.

November 12, the third injection of salvarsanized serum was given. Fluid Wassermann —, cell-count 22 per cubic millimeter, Noguchi positive. Two weeks following the last injection it was noticed that the patient's memory was improving and that he had a better appreciation of his condition. There were no delusions and he recognized the former ideas as absurd notions. Neurologic examination showed no change.

December 8, serum Wassermann was negative, fluid Wassermann negative, cell-count 18 per cubic millimeter, Noguchi opalescent.

Summary.—The patient's mental condition at the time of admission was characterized by ill-defined delusions of business activities, defective memory for recent events, and irritability. There has been a very noticeable improvement in memory and his conduct is under very good self-control. The fluid Wassermann became negative and the cell-count eight weeks after the first treatment shows a reduction from 74 to 18.

The accompanying table gives the cerebrospinal fluid examinations and the Wassermann reactions before treatment, the findings at the time of the third injection and again four weeks later.

The neurologic findings show no marked alteration following the treatment. In Case 6 the patient had one absent knee-jerk, and now it can be elicited very easily. This change may be due to more involvement of the lateral columns of the cord rather than an effect of the treatment. The facial tremor and speech disturbance is less noticeable in Cases 1 and 2. This has gone parallel with the improvement mentally. In Case 3 there was incontinence of urine which has entirely disappeared for five weeks. Involuntary urination and defecation were present in Cases 1 and 2, but they were the result of mental dulness rather than true incontinence. With the improved mental condition in these two cases this trouble has entirely ceased.

A review of the mental symptoms is not very encouraging. It must be borne in mind, however, that even though the disease is arrested, there would still remain some mental defect as a result of the destructive process in the brain. In Case 2, however, the mental change is worthy of note. After a duration of seventeen months this patient had impairment of memory, lack of apprehension and untidy habits. One month after the last injection it is noticed that memory for recent events is very accurate, emotions are active and stable, and there is an alertness of preception in marked contrast to the earlier dulness. This case has shown the greatest reduction in cell-count.

The blood Wassermann reaction was altered in two cases. In Case 2 it became negative at the time of the third injection and remained so when the patient was examined again four weeks later. In Case 4 a Wassermann + + + was changed to a Wassermann +. In the case of cerebrospinal syphilis, both the serum and fluid Wassermanns became negative. The fluid Wassermann remained stationary in all the cases of paresis. Kaplan[3] has discussed cases of tabes with "Wassermann-fast" reactions which go on to taboparesis. It may be that all cases of paresis are not "Wassermann-fast," and are amenable to treatment as shown by Case 2.

The Noguchi butyric acid test remains positive in all of the paralytics. Unfortunately, a record was not made of the intensity of the reactions. It was observed, however, that in the beginning the precipitate was heavy and flocculent, whereas in the later tests it was finely granular and came down slowly. In some of the cases the Noguchi reaction would be unusually heavy after the first intraspinal injection and then gradually diminish. In the case of cerebrospinal syphilis the fluid changed from a positive Noguchi to one giving an opalescent reaction.

The most striking result of the treatment is a reduction in the cell-count. The original counts were all very high, but there was a decided reduction following each injection of salvarsanized serum. In two cases the num-

SUMMARY OF FINDINGS IN PARESIS TREATED BY INTRASPINAL INJECTIONS OF SALVARSANIZED SERUM

Case	Diagnosis	Before Treatment				Four Weeks after First Injection				Four Weeks after Last Injection			
		Cerebrospinal Fluid			Blood	Cerebrospinal Fluid			Blood	Cerebrospinal Fluid			Blood
		Cells	Nog. B. A. Test	Wa. R.	Wa. R.	Cells	Nog. B. A. Test	Wa. R.	Wa. R.	Cells	Nog. B. A. Test	Wa. R.	Wa. R.
1	Paresis	46	+	+ + +	+ + +	?	+	+ + +	?	13	+	+ + +	+ + +
2	Paresis	61	+	+ + +	+ + +	12	+	+ + +	*	3	+	+ + +	—
3	Paresis	35	+	+ + +	+ + +	5	+	+ + +	+ + +	4	+	+ + +	+ + +
4	Paresis	72	+	+ + +	—	?	?	?	?	8	?	+ + +	+
5	Paresis	11	+	+ + +	+ + +	7	+	+ + +	?	10	+	+ + +	+ + +
6	Paresis	118	+	+ + +	+ + +	28	+	+ + +	?	14	+ *	+ + +	+ + +
7	Cerebral syphilis	74	+	†	—	22	+	+ +	?	18	‡	—	—
8	Paresis control	68	+	+ + +	—	51	+	+ + +	?	50	+	..	..
9	Paresis control	98	+	+ + +	—	51	+	+ + +	?	61	+	..	..

* Slow. † Positive. ‡ Cloudy.

3. Kaplan, D. M.: The "Wassermann-Fast Tabes," THE JOURNAL A. M. A., Dec. 20, 1913, p. 2214.

ber of cells were reduced to normal. Case 6 was the only one which did not show any change, but the original count in this case was very low. It may be argued that reduction of the cell-count is due to the removal of 30 c.c. of fluid at two-week intervals, with a slow accumulation of cells. This is not borne out by a comparison with two cases as controls. In Case 9 in the table the patient was injected intraspinally with salt solution after the withdrawal of 30 c.c. of fluid at two-week intervals. There was only a slight reduction in the cell-count. Case 8 was treated the same way, except that plain serum was used instead of salt solution. This case also showed but a partial reduction four weeks after the last injection.

Definite conclusions cannot be drawn from such a small number of cases, but this paper is presented with the hope that it will add a little evidence to that of other workers in determining the proper method of treatment. The finding of spirochetes in the cortex of paralytics by Noguchi and Moore will help to place the therapy on a scientific basis. If the causative agent of the disease cannot be reached through the blood-stream, the other avenue of approach is through the cerebrospinal fluid and lymph-spaces. The treatment here described may not be the solution of the problem, but the work thus far shows that the method of Swift and Ellis deserves a thorough trial.

We wish to acknowledge our indebtedness to Dr. G. L. Boalt for the Wassermann examinations; also we wish to thank Dr. Leonard Stocking, medical superintendent, for permission to publish this report and for providing facilities for the work.

SUBACROMIAL BURSITIS *

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In the discussion of the lesions of the shoulder-joint, the various more or less intimately associated bursae received practically no consideration until after the appearance of the first paper on this subject by Codman in 1906. Codman states that inflammation of the subacromial bursa causes more shoulder-joint disability than all other shoulder-disorders combined, including fractures and tuberculosis, a statement which a limited personal experience and observation induce me to endorse. Codman says:

> Subacromial bursitis is usually diagnosed as "brachial neuritis, periarthritis, muscular rheumatism, circumflex paralysis, contusion of the shoulder, fibrous gout, rheumatism," etc

In the past few years a number of articles on this subject have appeared, all of them giving due credit to the work of Codman, and quoting more or less freely from his writings. Codman first called this lesion under consideration "subdeltoid bursitis," believing that there were usually two bursae, a subdeltoid and a subacromial, the former lying between the deltoid muscle and the tuberosity of the humerus, and the latter between the tendon of the supraspinatus muscle and the overhanging acromion.

In his later papers Codman considers a single bursa the more usual; if two be found they are to be regarded as a divided subacromial bursa. Prestiss of Iowa City insists that his dissecting-room experience leads him to conclude that this bursa is usually multilocular, an observation which further confirms the frequency of bursitis with resulting adhesions. This bursa is attached below to the fibrous expansion of the supraspinatus muscle and the greater tuberosity of the humerus, and above to the under surface of the deltoid muscle and to the overhanging acromion and coraco-acromial ligament. It is free at its periphery, that it may act out its gliding roller-bearing function when the arm is abducted or rotated.

It is readily understood that this bursa, in its exposed position, may be readily involved in trauma about the shoulder-joint, as in a fall or a blow. It is also readily seen that a laceration of the tendon of the supraspinatus muscle, near its attachment to the greater tuberosity, would unavoidably involve the base of the bursa. The constant repetition of the same motion, as in pitching a baseball during a lively game, the pitcher being without proper training, may cause inflammation of this bursa. Any injury of the arm, or any long-continued fixation of the arm may also result in adhesions between the roof and the floor of the bursa. Occasionally the bursa is inflamed in general sepsis; also in gonorrhea, pneumonia, rheumatism, or tuberculosis.

Whatever be the cause of the bursitis, the resulting clinical picture will be best understood by dividing the process into three stages: In the first stage, that of acute inflammation, the rubbing together of the opposed surfaces causes severe pain, and the muscles of the shoulder-joint are on the defense, as are the abdominal muscles in the early stage of peritonitis, or the chest-muscles in pleuritis, and the shoulder-joint is fixed by muscle spasm whenever motion beyond an arc of 10 degrees is attempted. This limited painless motion must not be forgotten, as it differentiates bursitis from a number of other lesions, such as arthritis.

Muscle spasm and pain are very marked when the arm is abducted beyond 10 degrees. It is possible to bring the arm in front of the chest and place the hand on the opposite shoulder without pain. In fact, this position affords a sense of comfort. To attempt to button the collar at the back of the neck, involving as it does extreme outward rotation, is exceedingly painful or impossible. To button the suspenders behind involves extreme internal rotation, and is exceedingly painful or impossible. A patient may be disabled for months. Internal and external rotation and abduction beyond 10 degrees involves rather extensive movement between the opposing inflamed floor and inflamed roof of the bursa. It is difficult or impossible to find a comfortable position in bed. To lie on the involved side or on the opposite side is equally painful; while in the supine position there is a very uncomfortable dragging at the shoulder. Dawbarn calls attention to a sign which he considers pathognomonic. Finger-pressure over the shoulder just external to the acromion is very painful while the arm is hanging at the side, because the inflamed bursa is compressed. If it be possible to raise the arm the bursa slips under the protecting acromion and this painful pressure-point disappears. Pressure at other points is free from pain. As in pleuritis, there may be an accumulation of fluid in the bursa, and it is very easily understood how in abduction this distended and tender bursa is caught between the tuberosity of the humerus and the overhanging acromion. Muscle spasm again fixes the joint.

When the sharp pain of a pleuritis is remembered, it is easy to understand how the rubbing together of the

* Read before the Western Surgical Association, St. Louis, Dec. 19-20, 1913.

opposing inflamed surfaces of the bursa causes muscle spasm and fixation, as well as severe pain. As in pleuritis, there may be palpable friction. Nor is it difficult to understand how, as in pleurisy, the opposite inflamed surfaces of the bursa become adherent, and how, as the acute inflammatory process subsides, movement is less painful but limited by adhesions. In this second stage of adhesions the patient may make valiant attempts to abduct his arm to button his back collar-button, or to button his suspenders behind, but these movements are often entirely impossible, simply because adhesions do not permit the necessary movement between the floor and roof of the bursa. Nor is it difficult to understand how in the course of time these adhesions melt away, as in peritonitis, and how these same movements become possible, the pain and discomfort incident thereto slowly growing less and finally disappearing. Sometimes adhesions are entirely painless, but only in comparison to the excruciating pain of the acute stage. Codman says:

> It is during the stage of adhesions that the influence of the character of the individual on the course of the disease is most marked, because the man who can make use of his tender and atrophic muscles in spite of the soreness has a great advantage over the hypersensitive neurasthenic who has not the courage to stretch his adhesions.

If he will persist in stretching his adhesions good results are to be expected.

In the third stage of Codman, the adhesions have given way and the full range of motion has returned, but with pain and discomfort still attending certain movements, as when the arm is abducted and the still enlarged bursa refuses to slip under the acromion. Sometimes the bursa is so large that it locks the arm at this point, and many patients learn that by rotating the humerus outward the arm is raised without difficulty, as by outward rotation the concave surgical neck of the humerus is brought under the acromion. Sometimes these patients think that the weather has some effect on their pet shoulder, a fact which easily leads to the diagnosis of chronic rheumatism.

The diagnosis of subacromial bursitis is not difficult when the lesion is remembered. Characteristic of the first stage are the persistence of painless motion within an arc of about 10 degrees, the muscle spasm when movement is attempted beyond this arc, the severe pain on pressure over the deltoid muscle just external to the acromion and absence of pain on pressure of other points, and the painful muscle defense on internal and external rotation of the humerus, with the locking of the joint on abduction beyond 10 degrees.

In the second stage, when adhesions are present, the diagnosis is equally easy. The more or less painful and impeded motion due to adhesions, especially on abduction, and internal and external rotation of the humerus, with the painful point of Dawbarn are characteristic. Of course, in this stage the pain is very severe if the adhesions be stretched beyond a certain point. In the third stage the relative freedom of movement with pain when certain movements are attempted, the somewhat impeded rotation of the humerus, and the locking of the arm on abduction are quite characteristic.

Roentgenoscopy may sometimes disclose the inflamed and thickened bursa, but is especially valuable in a negative rather than in a positive way, by demonstrating a joint apparently perfectly normal in every particular.

The prognosis is usually good if the patient has sufficient perseverance, grit and determination to stretch the adhesions. A few months ago I saw a young man of about 30 who had but a very limited motion in his shoulder-joint. He could not do more than bring his hands to the side of his head, and he had been in that condition for several years, an example of what may happen when the patient does not persist in stretching up the adhesions.

In the way of treatment, no attempt should be made to move the joint during the first stage, as such a procedure could only aggravate the condition. Phemister and Flint report that the removal of the fluid from the distended bursa, by means of an aspirating syringe, is followed by immediate and marked relief.

In the second stage, when the limitation of movement is due to adhesions, forced movement under chloroform may be tried, with the application of a suitable splint which will prevent the reformation of adhesions. This splint should be worn constantly for two or three days, and after this time for an hour or two daily for one or two weeks. A good method during the second stage is to increase the range of motion in the shoulder slowly and gradually by stepping on a block of wood four or five inches high, then grasping some object just within reach, and then slowly stepping off of the block. A cross-bar suspended in a closet door by chains with 1-inch links is a great aid, as the bar can be raised an inch at a time, say an inch every five or six days. The patient is to step on the block of wood, grasp the bar, hold tight and then step to the floor. This procedure will hurt, but it will also stretch adhesions between the roof and the floor of the bursa.

The inflamed bursa has been removed with very favorable results, but some of the best surgeons in America object to this procedure, and the objection is easy to understand when the extent of this bursa and its function are considered.

CONCLUSIONS

1. Subacromial bursitis is a very frequent cause of shoulder-joint disability.
2. It is caused by traumatism or by sepsis.
3. In the first stage abduction and rotation are limited by muscle spasm.
4. In the second stage abduction and rotation are limited by adhesions.
5. In the third stage, when adhesions have been sufficiently stretched or dissolved, movement may be relatively or entirely unimpeded.
6. The bursa may be distended with fluid, and limit abduction by being caught between the tuberosity of the humerus and the overhanging acromion.
7. Treatment: In the first stage, rest; in the second stage, persistent but mild stretching of adhesions; in the third stage, continuation of movement, with possible excision of the bursa. At any stage, a bursa distended with fluid may be evacuated.

The Midwife and Ophthalmia Neonatorum.—Just so long as statistics show that midwives attend 50 per cent. of all births of the country and 75 per cent. of births among the poor, and that from 25 to 40 per cent. of all pupils in schools for the blind in this country and Europe are blind from ophthalmia neonatorum or "babies' sore eyes," we cannot afford to ignore the problems presented by midwife practice. She finds in the failure of health bodies to inspect and regulate her practice an exemption from responsibility which breaks down the stndards which she has been obliged to maintain in the foreign country from which she came.—Marian A. Campbell, in *Ohio State Med. Jour.*

GASTRO-ENTEROSTOMY BY A PLASTIC FLAP

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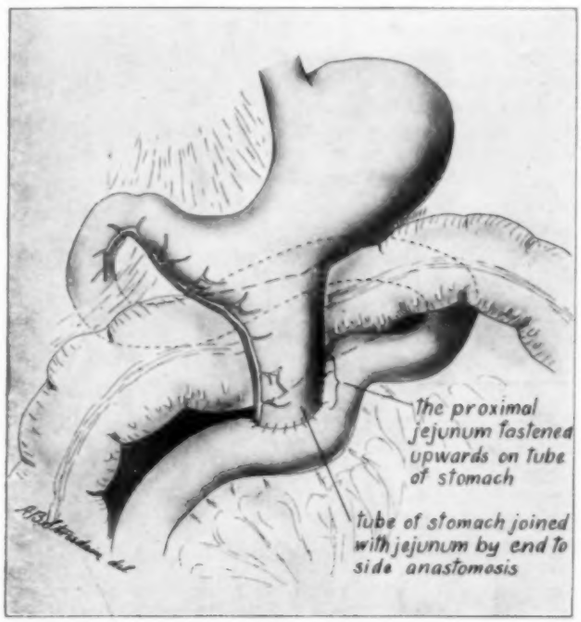
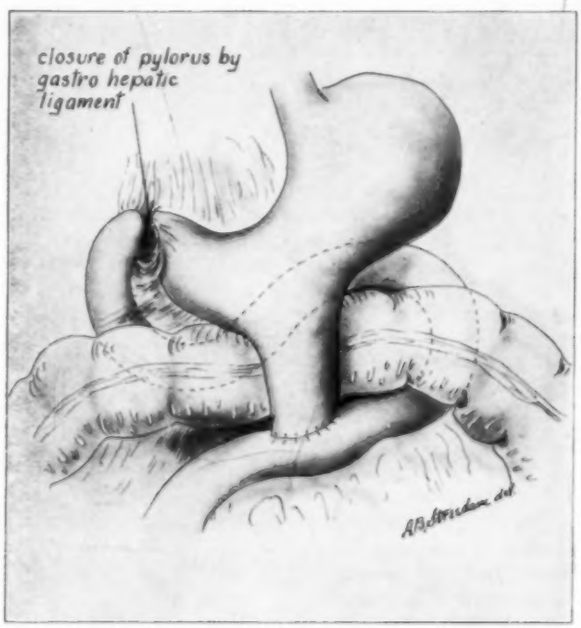
CHICAGO

In 1904 and 1905, when Alexis Carrel was associated with me in Chicago, we made some experiments, forming a union between the esophagus and the stomach for the purpose of studying an operative procedure for the cure of obstruction of the esophagus near the cardia by scar or carcinoma.


the proximal jejunum fastened upwards on tube of stomach
tube of stomach joined with jejunum by end to side anastomosis



Figures 1 and 2.—Technic of operation for gastro-enterostomy by a plastic flap.

We had the idea that the large curvature of the stomach offered good material for making a well-nourished flap of sufficient length to permit the formation of a tube with which to connect the stomach with the esophagus above. The upper part of the new esophagus was formed by cutting the esophagus across, as low as possible, and drawing it forward until it joined the tube formed from the flap.

We called it the "prethoracic esophagus," and demonstrated the result before the Chicago Medical Society.[1]

About eight years later Jianu of Bucharest (after Wullstein and others had done some work in this line) brought out the identical method and published it in Germany. It is known there as the Jianu method.

Dr. Willy Meyer,[2] who had no knowledge of our work, brought this method before the American public in his paper presented at the Minneapolis session of the American Medical Association in 1913.

The same method had been employed by me for some time for gastro-enterostomy. Instead of using the newly formed tube of the stomach wall for union with the esophagus, it is in this instance implanted into the small bowel. The technic is as follows:

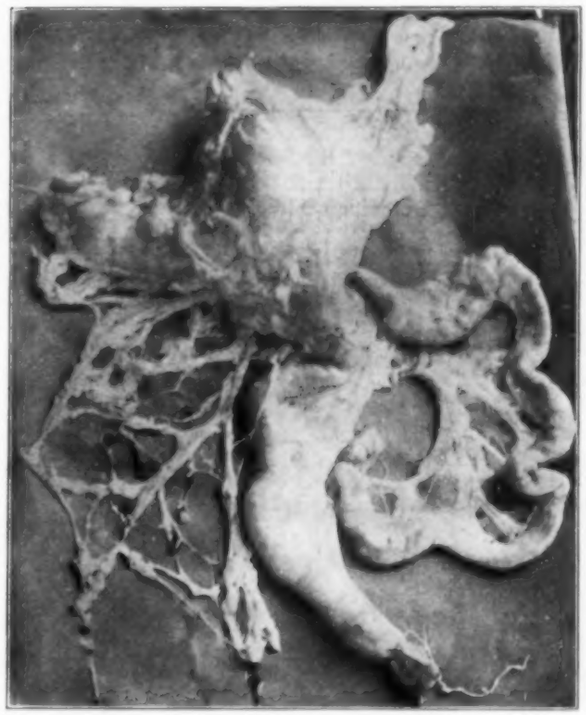


Fig. 3.—Illustration of specimen showing, above, the cardia and pylorus tied; in center, the new pylorus; below, the small bowel. To the right is shown the empty duodenal side, and to the left the full distal portion of the jejunum.

One Doyen clamp is placed across the pyloric antrum, and the other at a right angle from the large to the small curvature. A flap is cut, either in the anterior wall or along the large curvature, but nearer the pylorus than the cardia, and a continuous suture is made to transform the flap into a wide tube. This is implanted, end to side, into a part of the jejunum, below, not far from the Treitz ligament.

In order to make the course of the flow of the stomach contents go through the distal portion of the jejunum, the proximal or duodenal arm must be sutured up along

1. Illinois Med. Jour., 1905, p. 473.
2. Meyer, Willy: Extrathoracic and Intrathoracic Esophagoplasty in Connection with Resection of the Thoracic Portion of the Esophagus for Carcinoma, THE JOURNAL A. M. A., Jan. 10, 1914, p. 100.

the side of the new tube. In this manner a reflux of the stomach contents around the corner (vicious circle) and backward is prevented.

The specimen (Fig. 3) distinctly shows the filled portion of the aboral and the empty oral portion of the jejunum.

This method is not much more difficult than an ordinary gastro-enterostomy, and requires but little additional time. How useful this method may be will be shown by a number of experiences on the human being, which will be reported later.

108 North State Street.

TECHNIC OF VAGINAL HYSTEROTOMY

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Some years ago[1] I described a method of abdominal hysterotomy in which a nearly bloodless field was secured by temporary compression of the ovarian and uterine arteries by means of Moynihan or similar clamps.

Fig. 1.—Transverse incision in anterior culdesac.

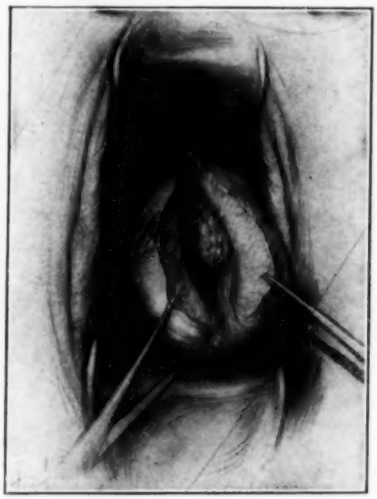

Fig. 2.—Cervix split to the internal os.

Fig. 3.—Circumscription by incision of base of tumor in case of submucous fibroid or polyp.

At that time I had already employed incisions as described in the present paper when vaginal operations were in progress. It was my belief that the principle was a new one; but subsequent reading has shown me the fallacy of this assumption. Dickinson[2] has recently summarized the literature of this subject.

The technic which I now employ is as follows:

The cervix is grasped on each side with tenaculum forceps and drawn down toward the vulva. A transverse incision is made in the anterior culdesac (Fig. 1). The bladder is then freely raised from the uterus.

The cervix is now split up to or slightly beyond the internal os (Fig. 2), and the fundus is brought out into the vulva.[3] It is well at this point to take a preliminary survey in order to determine the probable further requirements of the case. Often a lesion in the direct line of the incision is seen and the incision may then be extended to meet the conditions present. For instance, in case there is a submucous fibroid or a polyp the base of the tumor is circumscribed by the incision (Fig. 3).

When the lesion is diffuse, as in polypoid endometritis, a curet may be employed; but ordinarily when a lesion has been persistent enough to demand hysterotomy, complete excision of the affected area is better than curettage. This is particularly true if the patient is at or near the menopause.

When the lesion has been excised, the remaining portion of the uterus is united by sutures (Fig. 4). If possible, the knots should be placed inside the uterine cavity so that there may be as smooth a surface as possible when the fundus is replaced in the abdomen.

When the suture line has been placed as far as the internal os the fundus is returned (Fig. 5) to the abdominal cavity. The suture is then completed so as to unite the vaginal portion of the cervix and restore the incision in the culdesac (Fig. 6).

If so much of the fundus is removed (Fig. 4) that subsequent pregnancy would be unsafe, a portion of the tubes must be excised. If the portion of the fundus removed includes the insertion of the tubes, the free end of the broad ligament must be united to the remaining portion of the uterus in such a way that the tubes do not reach the cavity of the uterus, lest pregnancy take place.

The extent of uterus to be excised is determined by the extent of the lesion present. In idiopathic hemorrhage or diffuse polypoid endometritis at the menopause it may be desirable to excise the entire body of the uterus down to the internal os (Fig. 7). In this way a supravaginal amputation by vagina is done.

After the diseased portion is excised, if the broad ligament is involved in the excision, its free ends are brought together and attached to the stump of the uterus remaining (Fig. 8). This excludes the free surfaces from the peritoneal cavity, and when the excision is made at or near the internal os furnishes material support to the cervix.

This operation is particularly useful for tumors within the uterus. It permits excision of the point of

1. Hertzler, Arthur E.: Bloodless Hysterotomy and Preliminary Ligation as Aids to Conservative Myomectomy, THE JOURNAL A. M. A., March 13, 1909, p. 861.
2. Dickinson: Am. Jour. Obst., 1913, lxviii, 680.
3. This ordinarily requires that the cervix be pushed back in the posterior culdesac in order to facilitate the dislocation of the fundus. The position as illustrated in Figure 3 is possible when there is great relaxation of the broad ligaments.

attachment and the removal of the tumor without dragging it across the abdominal cavity. In cases in which malignancy is suspected it should be substituted for the curet. It allows a diagnosis under the eye of the operator and permits the required operation to be instituted at once. The curet should be banished as a diagnostic instrument because the lesion may easily escape the instrument. If the curet discloses malignant disease, radical treatment at once becomes necessary in order to prevent dissemination. The fibrin bands following the curettage act as gubernacula along which the malignant cells may migrate.

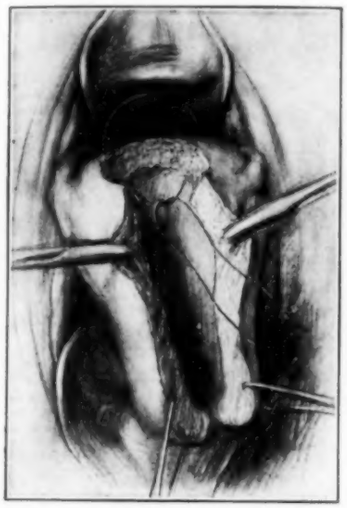

Fig. 4.—Remaining portion of uterus united by sutures.

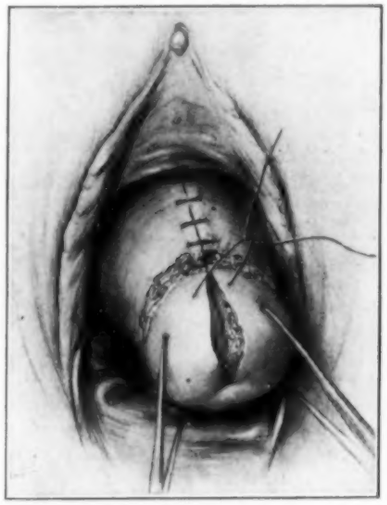

Fig. 5.—Fundus returned to abdominal cavity after completion of suture line to internal os.

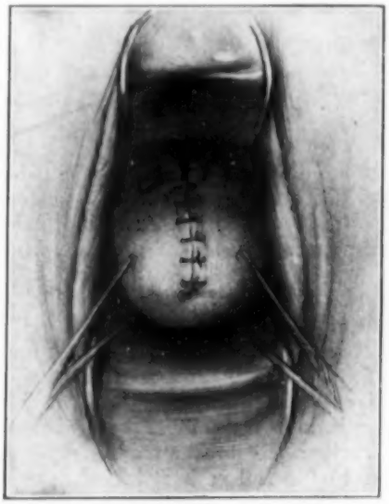

Fig. 6.—Completion of suture to unite vaginal portion of cervix and restore incision in the culdesac.

The operation is a perfectly safe one, and if coaptation is carefully made the uterine wall should be as firm as before. Two of my patients from whom fundal polypi were removed by this method have passed through normal pregnancies.

Fig. 7.—Excision of entire body of uterus down to the internal os.

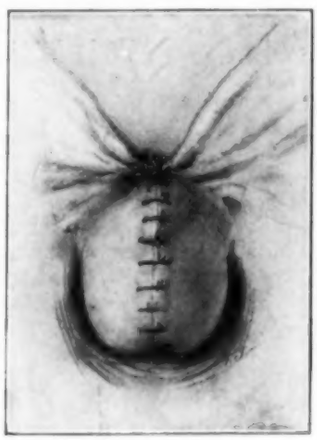

Fig. 8.—Free ends of broad ligament brought together and attached to stump of the uterus remaining.

In case cystocele, descensus or retroflexion coexist in a patient past the menopause, or in a woman whom for some reason it is necessary to sterilize, the Freund-Wertheim operation may be added with advantage.

1004 Rialto Building.

SIMPLIFICATION OF THE DUODENAL-TUBE EXAMINATION *

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SAN FRANCISCO

In applying the duodenal tube to the roentgenologic examination of the digestive tract we soon felt the need of a more rapid passage of the olive than is usual with the ordinary methods. Before the screen we observed that the propulsive force in the esophagus was the peristalsis, in the stomach the weight of the ball at the end of the tube, in the region of the pylorus a mechanism which is not yet perfectly clear, and in the duodenum again the weight of the ball. Since gravity was a significant factor, the position of the patient was of the utmost importance. By proper changes of the position we arrived at a technic which even with our wholly pathologic material led us to our goal in from twenty to twenty-five minutes. Of course, we except cases in which it is a manifest impossibility to effect a passage.

The steer-horn stomach offered especially simple conditions for bringing the force of gravity into play. This fitted in with our previous observation that practically all of our cases in which the ball had entered the duodenum quickly were steer-horn stomachs. The others in which it took hours for the capsule to get into the duodenum were long fish-hook stomachs. Of the different methods which we tried out that of Gross[1] gave us the best results. We therefore decided to follow his technic with several additions and modifications. We added the supine position, as we know that in the supine position every fish-hook stomach tends to take a transitional

* From the Central Roentgen Institute, Vienna, Dozent Guido Holzknecht, director.

1. Gross, M.: A Duodenal Tube, THE JOURNAL A. M. A., April 23, 1910, p. 1365; Kurze Erwägungen über die grob-physikalischen Eigenschaften des menschlichen Duodenal- (Jejunal-) Saftes, Wien. klin. Wchnschr., 1912, xxv, 1527.

form. Later we raised the hips in the supine position in order to overcome the chief obstacle to the passage of the olive, that is, the pylorus, which ran from the left anteriorly to the right posteriorly. The vertebral column, which acts as a watershed, prevents the olive from falling back into the left part of the stomach with the patient in the supine position. We also added the bending forward of the patient so that the tube might not become coiled up in the fairly common pseudo-hour-glass stomachs. Later still we fed the tube in to 80 cm. after the first five minutes in the supine position, as our olive fell back several times with only 70 cm. of tube. Most of our work was done with an original Gross tube. We still insist on the use of the heavy "Gross" ball, but use a thinner tube.

With this technic we succeeded in passing the tube not alone in normal cases, but much to our surprise in almost all pathologic cases. Among them were many with abnormally high acidity, "pylorospasm" and probably mild grades of stenosis with roentgenologically proved motor disturbances.

We wish to emphasize two details as the result of our roentgenologic observations. First, using our technic of insertion to the 80 cm. mark, the olive is practically always found in the genu inferius *after the patient has once assumed the erect position.* Hereafter whether the patients remain erect or resume the supine posture, whether the duodenum be empty or filled, whether at rest or in full peristaltic action, the olive remains in the genu inferius. Any one can be fairly sure therefore in using our technic that the aspirated juice comes from the genu inferius, that is, distal to the entrance of the ductus choledochus and the pancreatic ducts. If the patient walks around, the olive wanders farther. It is an interesting fact that not infrequently directly after the change from the right lateral into the supine position with raised pelvis, the aspirated juice changes its reaction from acid to alkaline. The olive apparently falls through the pylorus, or at least is propelled through very rapidly; but there does not seem to be any "selective" action of the pylorus or antrum which repels this rather large foreign body. That is the chief reason why it is unnecessary to wait hours for the tube to enter the duodenum.

We agree with Gross that it is best to insert the tube on a fasting stomach. We have made direct comparisons in individual cases which showed that the tube passed more rapidly on a fasting stomach. We also suggest that patients do not smoke. During the insertion we recommend rhythmic breathing as the best remedy against the retching which often occurs during the introduction of the tube for the first time.

The detailed technic is as follows:

The fasting patient sits in a chair and swallows the olive of the freshly oiled tube, with the aid of the physician's finger if necessary. With the patient breathing rhythmically between swallows, the tube is allowed to pass in up to the 45 cm. mark, the patient holds the tube fast with his lips, and then bends forward a moment before he lays himself on the right side with raised upper body. Now the tube is held lightly between the fingers and is fed into the stomach up to 70 cm. The tube is really not shoved in, but allowed to follow the pull of the heavy olive and of the respiratory movements. Then gastric juice is aspirated and tested for its reaction. The patient remains five minutes longer on the right side with the tube held fast between the lips. The patient then rolls over on his back, and without allowing him to sit up we shove the wedge-shaped cushion or a couple of pillows under his hips. Five minutes later the tube is inserted to the 80 cm. mark. After another five minutes (often earlier) the juice is neutral or alkaline. If, as in some cases, the aspirated juice still remains acid, it is advisable to have the patient sit up a moment as the olive falls from the pars superior (which often contains acid juice) into the genu inferius. More uncommonly juice from the genu inferius may be weakly acid.

135 Stockton Street.

BROMID ERUPTION SIMULATING BLASTOMYCOSIS OR ECZEMA

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PHILADELPHIA

When a patient presents himself with an eruption confined absolutely to the back of the hand, in a large percentage of cases it will be either an eczema or an erythema multiforme. In a small number it may be tertiary syphilis; still more rarely, lupus vulgaris or more rarely still, a blastomycosis. Perhaps the most

Fig. 1.—Dermatitis due to ammonium bromid (from the same case as that illustrated in H. W. Stelwagon's "Diseases of the Skin," Ed. 7, p. 460).

unusual condition of any would be an eruption from the ingestion of bromids. To be sure, there are some other diseases which occasionally may develop on the dorsum of the hand alone, but they are the exception rather than the rule. Usually an eruption of similar character will be found on other parts of the body. The patient will frequently say that the eruption is confined to one situation, but if careful examination is made it will often be found elsewhere. This mild deception may be inadvertent; patients may not have noticed it; they may be of the type that does not bathe frequently and is not observant; at other times, they may wish to conceal, from a false sense of modesty, an eruption that would be the clue to an easy diagnosis. In teaching students, there is one point that cannot be impressed on them too frequently or too emphatically — that they must not be content with an examination of a small part of the body of any patient with a skin disease; the situation, configuration, color and type enter into the diagnosis so intimately that it is absolutely imperative that careful and thorough examinations be made.

In the three conditions under discussion in this article, the resemblance is often so close that not only

must a careful examination be made, but the microscope must also be employed and cultures made from the discharge, all of which was done in the following case:

Mr. F. W., aged 50, had been suffering from epilepsy since childhood; he had been subject to frequent attacks and had been under constant treatment for them. In February, 1913, he came to the skin dispensary of Jefferson Medical College Hospital, with a typical case of bromid eruption; it

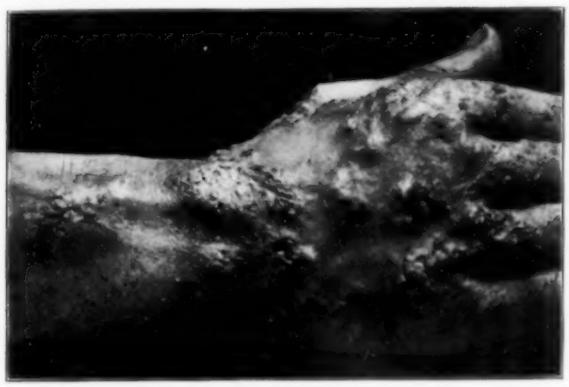

Fig. 2.—Blastomycosis (courtesy of Dr. Henry W. Stelwagon).

was acne-like in character—a papulopustular eruption that was confined to the back and outer aspect of the upper arms. He had been taking sodium bromid, and the eruption promptly disappeared on the withdrawal of the drug and free purgation. One of the curious factors in this case was that an eruption should occur from ingestion of any salt of bromid at this late date, for the patient had been taking the drug in one form or another for thirty years, and this was the first time that he had ever had an eruption of any type, according to his statements. Perhaps, however, they should be taken *cum grano salis*, for it is doubtful if any patient who had had a nervous affliction such as he had, could make statements on which absolute reliance could be placed. There is no history of massive doses having been given suddenly; only a gradual increase from year to year as the effect of the drug wore off. The patient suffered so from the epileptiform convulsions, however, that he begged to be put back on the bromids again, preferring an eruption to the frequent seizures. His physician on this occasion prescribed ammonium bromid, and when I saw him, Aug. 10, 1913, he had an eruption on both hands that was hypertrophic in character, raised above the surrounding skin, sharply defined, dusky red, with deep fissures running in different directions throughout the lesion, and distinctly warty in character. The large lesions resembled to some extent verrucae, only the color was different and the zones between the lesions indicated a marked inflammatory process which the latter would not show. It was of the hypertrophic type so frequently seen in babies who have been given soothing syrups that contain bromids. The eruption is shown quite clearly in Figure 1, extending down the middle finger, over the knuckle of the ring-finger and slightly on the wrist of the right hand. There were no subjective symptoms other than stiffness in moving the joints.

This patient was shown at the Philadelphia Dermatological Society, and comment was made on the resemblance that it bore to a blastomycosis. A biopsy had been performed, however, and nothing suggestive in the way of a blastomycotic condition was found. Further proof of its not being the latter was found in the therapeutic test; bromids were discontinued, purgative medicines given, and while in the course of between two and three weeks the eruption had entirely disappeared, at its height it certainly bore a very close resemblance to a blastomycosis such as shown in Figure 2. The chief points of difference, however, were the rapidity of onset, the short duration when the causative factor had been withdrawn, the lack of scarring and the color. Blastomycosis, as a rule, starts as a small papule or vesicle and progresses very slowly, and at the expiration of several weeks would not be more than half an inch in diameter. To produce an eruption such as in Figure 2 would consume many months, whereas the bromid eruption took place in a few weeks. In the patches of blastomycosis, the edges would be elevated, in some cases producing a distinct crater, and there would be a purplish discoloration in conjunction with a well-marked infiltration of tissue. Of course, the finding of the parasite within the abscesses would necessarily confirm the diagnosis of blastomycosis.

An eczema may bear a close resemblance occasionally to a blastomycosis, and much more frequently to a dermatitis caused by the ingestion of some bromid. While the larger percentage of cases would probably be eczema, yet the eruption must be closely studied to eliminate either of the other two affections. Figure 3 illustrates an eczema which might prove of some difficulty in diagnosis were it not for the intense itching and for the fact that the man had been a leather-worker. Figure 4 illustrates an entirely different type from the foregoing cases of eczema, and bears even a closer resemblance to blastomycosis or a bromid eruption. It was of the same hypertrophic growth, though to a lesser degree, and the fissuring is a marked feature. The lesion was not sharply defined, but faded off into the

Fig. 3.—Occupational eczema.

surrounding skin, and is only slightly raised above the healthy skin.

The chief interest in this case of eruption from the ingestion of bromids lies not only in its close resemblance to blastomycosis and eczema, but also in the fact that it was produced by ammonium bromid, when on a former occasion the patient had taken sodium bromid and the acne-like eruption which is so characteristic in adults was produced. This warty fungaceous growth is

not commonly seen in adults, but is much more frequent in young babies and children, while the acne-like form so frequently seen in adults is rarely seen in early life. Why salts of bromid should produce entirely different types of eruptions in adults and in infants is an interesting problem; but perhaps the explanation lies in the fact that bromid eruption in infants is usually produced by some so-called "soothing" remedy which usually contains other drugs than bromids.

Fig. 4.—Eczema fissure.

The patient who is the subject of this paper still continues to take bromids, but in smaller doses, and has had no return of either type of eruption.

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A SUGGESTION IN THE TREATMENT OF SYPHILIS *

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The spinal administration of salvarsanized serum in the treatment of syphilis of the nervous system marks an important epoch in serotherapy. This mode of treatment, devised by Swift and Ellis, offers great promise for the future. The literature now contains records of experiences which indicate its efficiency in paresis and tabes. The originators of the method have controlled the intraspinal injections by repeated examinations of the spinal fluid and by a study of the subsequent clinical features of their cases. They feel that "there is definite evidence that this form of treatment has a curative action on the syphilitic process."[1] The return of an abnormal spinal fluid to normal, as the result of treatment, has been marked; and in many cases there has been an improvement in symptoms. Hough,[2] in his report of four cases, states that "we see pronounced improvement in the four reactions in all, and symptomatic in three." He further adds that in the study of the spinal fluids in 240 cases of paresis, he has never seen such pronounced improvement in the reactions as occurred under the intraspinous injections. McCaskey[3] summarizes his experience as follows:

> I only wish to say for the present that after giving twenty instraspinal injections of neosalvarsanized serum to seven patients, over a period of about three months, I have seen in some cases remarkable improvement, and believe the method . . . to offer a new and entirely rational method of attack on the localized infection in cases of cerebrospinal syphilis.

It is noteworthy that the new treatment has been applied to patients showing the signs and symptoms indicative of involvement of the nervous system. In all the cases on record, therefore, there has been an existing syphilitic inflammatory process, possibly with added degeneration of nervous tissue. The poor regenerative power of nervous matter is, moreover, well recognized.

The examination of the cerebrospinal fluid in cases of syphilis other than those of the nervous type has led to important findings. In a review of the literature, Nichols and Hough[4] point out that the *Spirochaeta pallida* has been demonstrated in the spinal fluid during life in four cases: twice in papular syphilis, once in hereditary syphilis, and once in syphilis of the nervous system. They add their own record of isolating, by inoculation experiment, the *Spirochaeta pallida* from the cerebrospinal fluid of a patient with nervous relapse following the use of salvarsan. Other investigators have shown by serologic, cytologic and chemical examination of the spinal fluid that the nervous system is infected early even though there are no nervous symptoms. Ravaut[5] in 1912 was of the opinion that at the time of the chancre there was no involvement of the nervous system, but that 67 per cent. of the syphilitics showing no clinical nervous symptoms had a meningeal infection, evidenced by lymphocytosis and albumin content in the spinal fluid. In a detailed study of the spinal fluid in one hundred cases of syphilis, six cases had a positive Wassermann reaction, increased cell-count and increased globulin content; and yet symptoms referable to nervous involvement were absent.[6] The frequent improvement in paresis and tabes following the intraspinal injection of salvarsanized serum, and the early involvement of the central nervous system in many cases of syphilis suggest strongly the early application of the treatment before injury to the nervous tissue is done. Our laboratory experience supplements that of other observers in obtaining positive Wassermann reactions with the spinal fluid following intravenous injections of salvarsan. Evidence has been cited showing the presence of inflammatory processes in the meninges of cases of early syphilis, and also the presence of spirochetes in the spinal fluid. The mode of attack has been indicated by Flexner. It becomes important to destroy the organisms by intraspinal injection of the therapeutic agent before they have entrenched themselves in regions of poor vascularity. Swift and Ellis have devised that agent in the form of their salvarsanized serum.

* From the Bender Hygienic Laboratory.

1. Swift, Homer F., and Ellis, Arthur W. M.: The Treatment of Syphilitic Affections of the Central Nervous System with Especial Reference to the Use of Intraspinous Injections, Arch. Int. Med., September, 1913, p. 331.
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6. Engman, Buhman, Gorham and Davis: See Footnote 5.

The suggestion is made that in all cases of syphilis, particularly those in the primary and secondary stage, the patient be given an intraspinal injection of salvarsanized serum as part of the routine of treatment. This can be regarded as a prophylactic measure. Every case of syphilis is potentially one of paresis or of tabes, despite prolonged treatment. No lesion of syphilis creates a greater invalidism than an involvement of the central nervous system. The early application of the Swift and Ellis treatment offers the possibility of reduction in the number who become public charges as the result of cerebrospinal syphilis. This suggestion is offered with the hope that those who have entrée to clinical cases may determine its usefulness as a prophylactic measure.

AN ANOMALOUS TEMPERATURE-CURVE IN THE MODERATELY ADVANCED TUBERCULOUS

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The variability of the temperature-curve and the pulse-wave as usually observed in the tuberculous is so well known to all physicians that a reference to it at this time may appear to be somewhat superfluous, if not preposterous. A correct picture with the proper interpretation of the ordinary temperature-curve and pulse-wave in a suspected tuberculous person often strengthens our diagnosis, and such a picture as we usually see in moderately advanced, not very active, tuberculous cases, with a subnormal temperature in the early morning, normal toward noon, hypernormal in the late afternoon, and again slightly below normal in the evening, is generally described in every text-book treating on tuberculosis. An anomaly in the temperature-curve and pulse-wave, not described in any text-book consulted, and very little mention of which is made in the literature treating on the subject of phthisis as far as I was able to learn, came to my attention some time ago; and as I do not consider it a mere coincidence, I desire to call attention to it and the following observations.

If in a slightly advanced tuberculous subject the pulse-wave and temperature-curve are very carefully observed in the early morning, immediately on rising, always in the sitting posture, these observations minutely noted, and the patient then directed to proceed to make the necessary preparations for dressing, such as brushing the teeth, shaving, washing, combing the hair, then dressing, all of which should consume about thirty minutes, and then asked to sit down and the pulse and temperature again carefully taken, one will observe that the pulse has increased in frequency from 10 to 12 beats, but that the temperature has dropped correspondingly from 0.2 to 0.6 degrees.

As a control to these findings in the tuberculous, I requested a number of nurses and medical students, all in supposedly normal health, to report to me their early morning pulse and temperature findings, and a second observation in about thirty minutes after the first, all in the sitting posture, this to be noted very carefully and accurately daily for one week and then submitted to me for comparison. In every case I noticed a slight increase in the frequency of the pulse, usually from 1 to 4 beats, but no change in temperature was observed. Many of my ambulatory tuberculous patients are supplied with a thermometer and a small note-book, and four times each day they count the pulse and take the temperature and make proper notation thereof in this note-book. Recently I asked a patient to take the temperature and count the pulse every morning, making the usual notations in the note-book as he was wont to do, very accurately but with this supplemental, that the early morning observation should be made twice instead of once and in an interval of half an hour, once immediately on rising in the sitting posture and again just before breakfast, also in the sitting position. I did not make known to him the object of my request, but almost the first question he put after handing me his record-book for scrutiny was why it is that the temperature was a little lower at the second reading than it was at the first.

I requested another of my patients, a very intelligent person, who is now suffering from moderately advanced pulmonary phthisis, that she take very accurate account of the temperature and pulse five times each day, particularly the two early morning observations. From May 26 until Oct. 24, 1912, in all 144 daily accurate observations were made, making some days only four, but chiefly five notations. In 107 of the 144 readings the pulse invariably increased at the second reading about 10 to 12 beats per minute with a corresponding decrease of an average of 0.4 degrees at the second reading in temperature; in fourteen readings the pulse showed the accustomed increase at the second reading, but no difference in the second temperature observation was noted, the temperature in both readings being the same; in the remaining twenty-three observations the second temperature and pulse records were omitted.

Another patient suffering from moderately advanced pulmonary tuberculosis of the left lung (a successful compression of the diseased lung was made by means of an artificial pneumothorax by Dr. Ethan A. Gray at the Fresh Air Hospital, Oct. 27, 1913), at my request noted carefully the temperature-curve and pulse-wave for ten days, beginning the first day of this year, with this difference, that the first observation should be made while still in bed just before rising, and the second observation half an hour thereafter or just before breakfast. The average pulse for the ten days for the first reading was 88; the second reading half an hour afterward was 102. The temperature observations for the same time were 99 for the first and 98.7 for the second. These observations tend to show that, in the not very active, moderately advanced tuberculous person, if the temperature and pulse are taken immediately on rising, in the sitting position before the least effort or exertion has been made, or even before rising, and again in about thirty minutes after a little exercise, the pulse will have slightly accelerated from about 10 to 12 beats per minute, and that the temperature has not proportionately risen, but in most instances has fallen from 0.2 to 0.6 degree during that time, and that no such observations are made in the pulse-wave and temperature-records in non-tuberculous subjects.

In looking over the literature of the last few years, I find a single reference to this phenomenon. Possibly by close observation and proper notation of these facts, definite data might be gathered which would be of great diagnostic value not only in the moderately advanced cases, but more particularly in the early or in suspected cases. It would be necessary that a great many of these observations extending over long periods of time be

made, commencing at the onset or very early in the beginning of the disease, comparing the pulse-wave and the temperature-curve of the perfectly healthy with the slightly pathologic subject. This may lead finally to a definite and comprehensive understanding of these obscure facts, and may greatly assist the diagnostician, in connection with all the other signs and symptoms, to recognize early and obscure tuberculosis.

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ELEPHANTIASIS, WITH A REPORT OF A CASE

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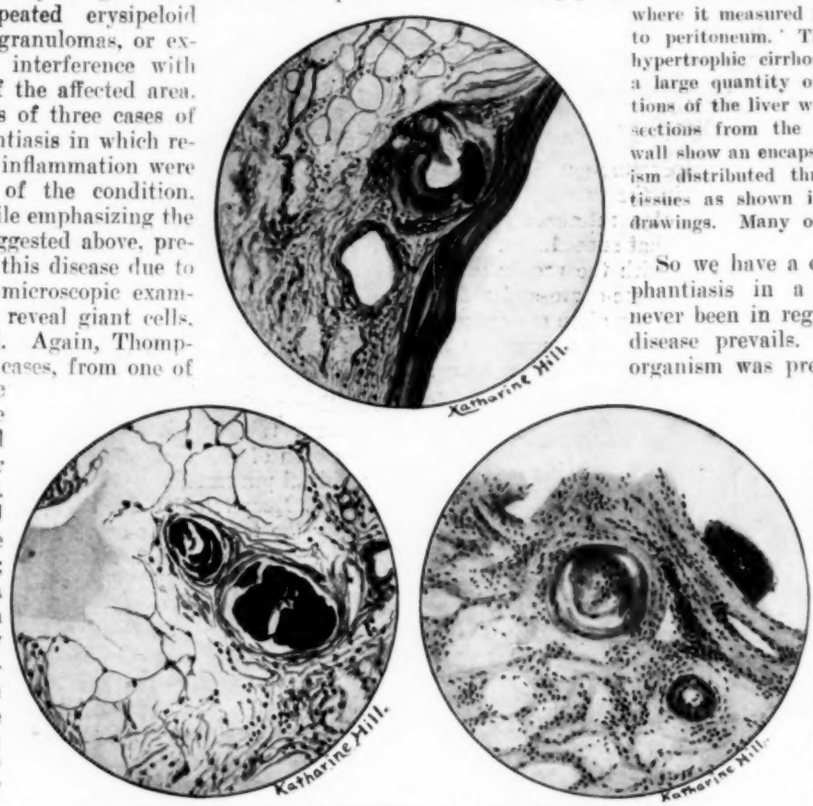
Elephantiasis in temperate latitudes is rare enough to deserve more than passing notice. Most cases reported are due to repeated erysipeloid attacks, tumors, granulomas, or extensive operative interference with the lymphatics of the affected area. Shattuck[1] tells us of three cases of lymphatic elephantiasis in which repeated attacks of inflammation were the chief cause of the condition. Then Brault,[2] while emphasizing the general causes suggested above, presents one case of this disease due to paratuberculosis, microscopic examination failing to reveal giant cells, or tubercle bacilli. Again, Thompson[3] records four cases, from one of which microscopic sections were made and studied by Professor James Ewing. This study showed the usual picture of chronic edema; some hyperplasia of the malpighian layer, hypertrophy of the sweat-glands, and an atrophy of the hair-follicles. In 1912, Hunter[4] gives a history of a woman who had never been outside the British Isles and whose condition followed repeated attacks of cellulitis. Here again the microscope showed nothing but chronic edema. The same is true of the cases reported by Van der Veer[5] and Coenen.[6] All these men are of the opinion that elephantiasis outside the tropics is due to recurrent attacks of cellulitis, tuberculosis, syphilis, tumors or extensive operative interference with the lymph drainage.

In the late autumn of 1912 I saw at Ely, Minn., with Drs. Ayres and Parker of that city a case of elephantiasis in a patient who had never been in the tropics. The history of the case is as follows:

Patient.—Mrs. M. K., aged 32, was born in Austria and lived there till 1903, when she and her husband moved to Ely, Minn. Shortly after her arrival the disease began to make its appearance. Patient noticed a swelling of both legs and the abdomen, beginning in 1904, which gradually grew worse until she was practically completely disabled in 1909. There is no history of cellulitis preceding this condition nor of any fever such as usually precedes a true tropical elephantiasis.[7] The blood was not examined for filaria at any time.

The patient had no living children. Three pregnancies resulted in a still-born full-term fetus in 1904, still-born seven months' fetus in 1906, abortion of a four months' pregnancy in 1908. The history is negative otherwise. No cases of a similar nature are known by her husband and friends in that part of Austria from which they come. The patient died in the spring of 1913.

A partial necropsy showed a thickening of the abdominal wall, becoming greater from the umbilicus down to the pubes, where it measured 3½ inches from skin to peritoneum. There was a marked hypertrophic cirrhosis of the liver and a large quantity of ascitic fluid. Sections of the liver were not obtained, but sections from the thickened abdominal wall show an encapsulated filarial organism distributed throughout the deeper tissues as shown in the accompanying drawings. Many of them are calcified.



Specimens from a case of elephantiasis, showing encapsulated filaria.

So we have a case of filarial elephantiasis in a patient who has never been in regions in which that disease prevails. What variety of organism was present could not be determined, but probably it is the filaria of Bancroft, the morphology of which is gone into at length by Fulleborn[8] and also by Foley.[9] How this infection was acquired is a matter of speculation, but filariae have been found in the blood of the horse,[10] in camels,[11] and in dogs.[12] Dogs have also been inoculated with the filaria by means of the mosquito.[12] So it is just possible that the definite relation between the incidence of filariasis and elephantiasis of which Daniels[13] speaks is not entirely confined to the tropics and that some cases of elephantiasis in temperate climates are due to filariae.

I wish to express my gratitude to Drs. Ayres and Parker for their kindness in allowing me to present this case.

7 West Madison Street.

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THE SUGAR-CONTENT OF THE BLOOD AND ITS CLINICAL SIGNIFICANCE*

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The presence of a sugar-like substance in the blood was first shown by Dobson in 1775, in a case of diabetes. Seventy years later Claude Bernard[1] showed this substance to be a constituent of normal blood, and also demonstrated that the amount of this sugar was increased by his well-known "sugar-puncture" in the floor of the fourth ventricle. Since that time the occurrence of hyperglycemia, or an increase in the amount of the sugar found in the blood in diabetes and other conditions, has been recognized, but little attempt has been made to study it clinically until within the past three or four years. Recently newer methods for the determination of the sugar-content of the blood have been devised, putting these estimations within the reach of the clinician, and our knowledge on the subject is advancing rapidly. It is the purpose of this paper to attempt to demonstrate the value of such examinations particularly in cases of glycosuria, and to show what knowledge may be derived from this procedure that will help the clinician.

The blood of a normal adult, under average conditions of diet, exercise, etc., contains a fairly constant amount of sugar, this sugar being glucose, or the same sugar found in the urine in cases of diabetes mellitus. For the blood-plasma this amount averages between 0.08 and 0.11 per cent., the upper limit being about 0.12 per cent.[2] For the total blood the figures are slightly lower, and any content above 0.11 per cent. is to be regarded as a hyperglycemia. This upper limit is rarely exceeded in health except as a result of feeding a large amount of carbohydrates at any one time, when much higher figures may be obtained in perfectly normal individuals.[3] The sugar of the blood is derived mainly from the carbohydrates of the food, the liver storing up the sugar absorbed from the intestine and holding it in the form of glycogen as a reserve, to be delivered to the blood in the form of glucose as it is needed to supply the tissues. It is then utilized to produce heat and energy, mainly by the muscles, which also contain a moderate reserve of glycogen. The sugar in the blood is mainly either free in solution, or in such loose combination that it has the chemical properties of free sugar, though some may exist in much firmer combination.[4] This *sucre virtuel*, however, may be disregarded for practical purposes.

In health the amount of sugar in the blood is to be regarded as a physiologic constant, just as the temperature, tension of carbon dioxid, etc., are physiologic constants.[5] The means by which the organism maintains this constant has been the subject of much study. Figure 1, taken from von Noorden,[6] illustrates schematically what we know of this regulation. The newer theory of diabetes[7] assumes that the amount of sugar in the blood depends on the rapidity of "mobilization" of glycogen in the liver, and that the hyperglycemia of diabetes depends on an abnormal increase in this mobilization, together with certain other factors. Normally, the glucose absorbed from the intestines is carried along Path I, and is built up to form glycogen. As the tissues call for sugar, sending the "call" back along Path II^a, the glycogen is mobilized, to form glucose, which reaches the tissues by way of Path II^b. This mechanism, however, is markedly influenced by other factors, and the rôle that these factors play is only imperfectly understood. The pancreas is to be regarded as having an inhibitory effect on the mobilization, through its internal secretion, so that an interference with this internal secretion, by removal of the pancreas or otherwise, results in the loss of this inhibition and an increased mobilization of the glycogen. On the other hand, the adrenals, through the liberation of epinephrin in the blood, are regarded as having a stimulating effect on this mobilization, an increase in the amount of epinephrin in the blood producing a hyperglycemia and glycosuria. It has been assumed, by von Noorden and others, that the hyperglycemia following removal of the

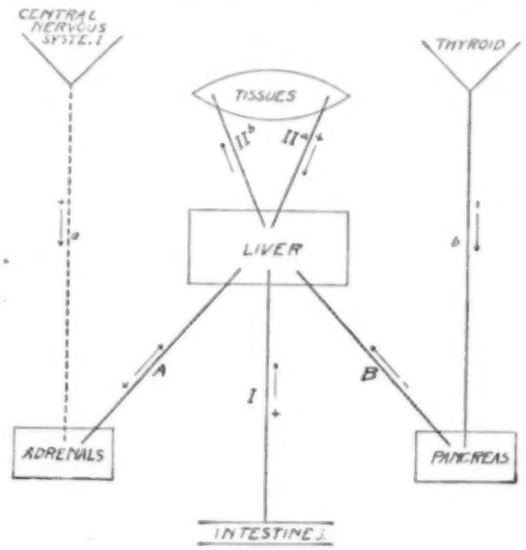

Fig. 1.—Schematic illustration (from von Noorden) of control of amount of sugar in blood; + = stimulation; — = depression; - - - - = nerve-paths; ———— = blood-paths; → = direction of action.

pancreas is due to the fact that the epinephrin in the blood is allowed to act unopposed on the liver-cells, thus increasing the rate of mobilization of the glycogen. Both the pancreas and the adrenals are under the influence of still other factors. The activity of the pancreas is influenced by the activity of the thyroid, increased activity of the thyroid resulting in decreased activity of the pancreas and a corresponding increase in the rate of glycogen mobilization and a decreased tolerance to sugar. This explains the decreased tolerance to carbohydrates often observed in hyperthyroidism. The reverse occurs in hypothyroidism, these patients having a greater tolerance to sugar. The activity of the adrenals is influenced by the sympathetic nervous system, probably controlled by a center in the floor of the fourth ventricle. Irritation of this center by a "sugar-

* From the Laboratory of Pharmacology, Department of Medicine, University of Oregon.

* Read before the Portland City and County Medical Society, Jan. 21, 1914.

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5. MacLeod: Diabetes, p. 52.
6. Von Noorden: Die Zuckerkrankheit, Ed. 6, Berlin, 1912, p. 171.
7. The Changing Theories of Diabetes, editorial, THE JOURNAL A. M. A., Aug. 2, 1913, p. 348.

puncture," concussion, pressure from a tumor, etc., would cause an increase in the amount of epinephrin in the blood through the stimulation of this mechanism, and thereby result in a hyperglycemia and glycosuria. Other factors, such as the internal secretion of the posterior lobe of the hypophysis, the internal secretion of the parathyroids, etc., have also an influence on carbohydrate metabolism, but our knowledge of this influence is too imperfect to permit us to draw any conclusions. It may be seen from the diagram that the primary disturbance in diabetes may be in any one of numerous situations. According to von Noorden,[8] primary anomalies of the liver-cells are the least common, and disturbances of the function of the pancreas the most common, other cases coming possibly from interference with the nervous control of the adrenals or from abnormalities of the adrenals themselves. Disturbances of the thyroid probably do not cause true diabetes.

The nature of the stimulus to the mobilization of glycogen from the liver, sent back by the tissues in need of sugar, or rather the intermediary regulator of the whole mechanism, is not known. The possibility of "hormone" control has been suggested by numerous authors (MacLeod[9]), but the nature of the hormones has not been proved. It seems reasonable to suppose that this hormone might be a product of the metabolism of dextrose, just as the oxygen intake of the body is regulated by the carbon dioxid content of the blood. This product may be carbonic acid, lactic acid, or some other end-product of the utilization of sugar in the muscles, the use of an increased amount of sugar resulting in an increased amount of lactic acid, for example, and the increased lactic acid content of the blood either acting directly on the liver-cells or at some point on the regulatory mechanism to increase the mobilization of glycogen in the liver.

The amount of sugar present in the circulating blood at any time may be determined by one of a number of methods, all of which are a trifle complex for the average clinical laboratory, in that they require special apparatus, standardized solutions and some knowledge of volumetric analysis. The method used by us in all of our determinations is one of the older methods, but is accurate, not time-consuming, and gives constant results. The method of precipitating the proteins from the blood was described by Schenck.[10] The method of determining the amount of sugar in the clear filtrate was described by Bertrand,[11] and his method is the most accurate method for the determination of glucose in small amounts.

The combined method is as follows:

Five c.c. of a 1 per cent. potassium oxalate solution are accurately measured from a pipet into a dry 50-c.c. volumetric flask. The blood is withdrawn from the patient's arm vein by letting it flow through a needle directly into the oxalate solution, which prevents clotting. From 10 to 15 c.c. are collected in this manner, no attempt being made to measure the amount withdrawn directly. The flask is now filled to the mark with water from a buret. The amount of blood withdrawn is then determined by difference, subtracting the amount of water used from the buret from 45, the capacity of the flask after 5 c.c. of oxalate solution had been put into it. The amount is recorded and is later used to calculate the percentage of sugar. The mixture in the flask is then poured into an Erlenmeyer flask of about 250-c.c. capacity, the measuring flask then filled with 2 per cent. hydrochloric acid to the mark, the hydrochloric acid poured into the blood mixture, and the same process repeated with 5 per cent. mercuric chlorid. The amount of the mixture now totals 150 c.c., and an aliquot part of this amount is later used in determining the total amount of sugar in the mixture.

After being thoroughly mixed, and allowed to stand about five minutes, the mixture is filtered through a dry filter into a second dry flask. It should filter rapidly and be perfectly clear. As the excess of mercury interferes with the sugar determination it must be removed, which is done by passing hydrogen sulphid through the liquid until precipitation is complete, which requires about ten minutes. After the precipitate is filtered off the excess of hydrogen sulphid is removed from the filtrate by a current of air passed through it for from ten to fifteen minutes, and the clear solution is now ready for the sugar estimation by Bertrand's method. Fifty c.c. of the solution are carefully measured from a pipet into an Erlenmeyer flask of about 250-c.c. capacity, the acid is neutralized with a strong solution of potassium hydroxid, and 20 c.c. each of Bertrand's copper and alkali solutions are added. These solutions have the following formulas:

I

Crystalline copper sulphate, C. P.	40
Distilled water to	1,000

II

Potassium sodium tartrate, C. P.	200
Sodium hydroxid (sticks)	150
Distilled water to	1,000

The mixture is now brought to a boil in about two minutes, and is allowed to boil rather gently for exactly three minutes. It is allowed to cool and then filtered through a specially prepared asbestos filter which collects the cuprous oxid reduced by the sugar. The cuprous oxid in the filter and that remaining in the flask after being washed well are dissolved in 20 c.c. of Bertrand's iron solution, having the following formula:

III

Ferric sulphate (not ferrous)	50
Sulphuric acid (concentrated)	200
Distilled water to	1,000

The whole solution is washed through a filter into a clean filter flask below with from 50 to 100 c.c. of water, and the mixture saved for titration. The amount of copper present in the solution is determined by titration with a standard solution of potassium permanganate, 1 c.c. of which represents 2 mg. of cuprous oxid. This solution is made by dissolving 5 gm. of potassium permanganate in 1,000 c.c. of water, and adjusting the solution until 22.5 c.c. are just decolorized by 0.250 gm. of ammonium oxalate.

For the standardization, 0.25 gm. of ammonium oxalate is weighed out carefully and warmed with 100 c.c. of water and 2 c.c. concentrated sulphuric acid to from 60 to 80 C. This is titrated with the potassium permanganate solution until a rose color appears, and the strength of the solution adjusted, if necessary, until it is of the right concentration so that 22.5 c.c. will just cause a rose color in the oxalate solution. This solution keeps well if tightly stoppered and kept in a dark place. Just before titration of the copper it is diluted 1:5 volumetrically, and the diluted solution represents 2 mg. copper to each cubic centimeter. The permanganate is now run carefully into the iron-copper solution, until a permanent rose color just appears, and the amount of copper is then determined directly by multiplying the number of cubic centimeters of permanganate solution used by 2. The amount of glucose is then calculated from Table 1, and the total amount

TABLE 1.—FOR SUGAR ESTIMATION[12]

Copper in mg.	= Sugar in mg.	Copper in mg.	= Sugar in mg.
1.1	0.5	11.5	5.5
2.2	1.0	12.5	6.0
3.3	1.5	13.5	6.5
4.4	2.0	14.5	7.0
5.5	2.5	15.5	7.5
6.5	3.0	16.5	8.0
7.5	3.5	17.5	8.5
8.5	4.0	18.5	9.0
9.5	4.5	19.5	9.5
10.5	5.0	20.5	10.0

8. Von Noorden: Die Zuckerkrankheit, p. 173.
9. MacLeod: Diabetes, p. 83.
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11. Bertrand: Bull. Soc. chim. de Paris, 1906, xxxv, 1285.
12. Moeckel and Frank: Ztschr. f. phys. Chem., 1910, lxv, 325

found is divided by the number of cubic centimeters of blood withdrawn to determine the amount in each cubic centimeter. One mg. per cubic centimeter of blood represents 0.1 per cent.

The results obtained by this method are said to be slightly lower than those obtained by other methods, but the methods said to be superior are much more difficult and time-consuming. Other methods, such as that of Kowarsky, are somewhat simpler and require less blood, but are correspondingly less accurate.

In pathologic conditions the amount of sugar found in the blood may vary within wide limits. As already mentioned, the content of normal blood rarely exceeds 0.11 per cent., and then only as the result of feeding a large amount of carbohydrates at one time. In diabetes, however, this amount may be increased by several hundred per cent., and results of 0.36 per cent. and higher are very common. Rolly and Oppermann[13] have found amounts exceeding 1 per cent. in diabetic coma. In our series results of practically 0.7 per cent. have been obtained in two cases. The amount in the blood in diabetics is very susceptible to changes in diet, because of the disturbance of the physiologic adjustment. Thus a greater increase in the blood-sugar content asserts itself in the abnormal than in normal persons after an identical intake of carbohydrate.[2]

The relation between the sugar in the blood and that in the urine, while not constant, shows certain tendencies. The appearance of sugar in the urine is to be regarded as an overflow from the blood when the concentration in the blood reaches a certain point. That is, the kidneys, while normally excreting practically no sugar, act as a safety-valve to prevent the accumulation of large amounts of it in the blood. Usually this overflow occurs when the sugar of the blood reaches a concentration of about 0.15 per cent., although this threshold may be altered in certain cases of diabetes, being either raised or lowered.[14] This is illustrated in three of our cases, in which values of 0.19, 0.198 and 0.182 per cent., respectively, were obtained in the blood when no sugar was found in the urine, though sugar had previously been found in all three cases. In these cases the results of treatment must be watched entirely by the blood-sugar, as the sugar appears in the urine only when a marked hyperglycemia is present, and does not serve as a guide to dietetic treatment. The threshold is also somewhat higher in normal persons, as Jacobsen[3] has shown that the content of sugar in normal persons may be raised by overfeeding with carbohydrate to 0.16 or 0.17 per cent. without inducing an elimination of glucose.

One is led to infer, therefore, that the elimination of glucose through the kidney-cells causes certain alterations to their susceptibility to the presence of increased amounts of sugar in the blood. After the presence of sugar in the urine has become established, the amount rises rapidly in proportion to the amount in the blood. This is shown in Figure 2, the curve being plotted from the comparative amounts of sugar in the blood and in the urine in our series. In preparing this curve atypical results were disregarded, the average typical results being used. MacLeod[15] has shown that the fall of the blood-sugar curve following stimulation of the splanchnics is much more rapid than the fall of the urinary-sugar curve. This is probably due to the fact that the kidneys become accustomed to excreting large amounts of sugar, and react slowly to the decrease in the amount in the blood. The same occurrence is noted in certain cases of diabetes. For example, in Cases 5 and 14 of our series, after marked reduction in the blood-sugar, the amount in the urine remained disproportionately high. Table 2, from which the curve was plotted, shows the relation of the urinary sugar to the blood-sugar in our cases. The first five were normal persons, the others all cases of glycosuria, though numerous examinations were made during aglycosuric periods. All estimations of urinary sugar were made simultaneously with the blood-sugar, the polarimeter being used in every case.

TABLE 2.—RELATION OF URINARY SUGAR TO BLOOD-SUGAR

Case No.	Percentage of Sugar in Blood	Urine	Case No.	Percentage of Sugar in Blood	Urine
Normal	0.076	0	4	0.19	+
Normal	0.082	0	15	0.198	0
Normal	0.087	0	5	0.26	5.3
Normal	0.099	0	14	0.275	6.4
Normal	0.10	0	7	0.29	1.5*
10	0.111	0	12	0.36	6.4
9	0.127	0	11	0.38	4.8
13	0.133	0	1	0.39	6.8
3	0.14	0	8	0.40	6.3
1	0.15	0.8	6	0.56	6.85
11	0.158	0.1	16	0.63	8.0
9	0.182	0	14	0.69	8.0
2	0.19	0	5	0.72	8.0

* Coma.

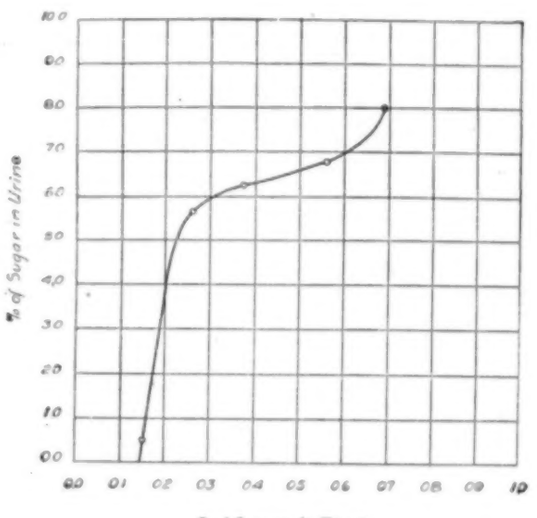

Fig. 2.—Relation of urinary sugar to blood-sugar.

The detailed report of these cases will form the subject of a later communication, but Table 2 illustrates much of what is to be derived from the study. It may readily be seen that the sugar-content of the urine does not give a true index of the amount in the blood, and that a direct determination of the amount in the blood must be made if one desires to have knowledge of it. The retention of sugar in coma is illustrated in Case 7, in which, with a relatively high blood-sugar content, the urinary content is low. The daily excretion of sugar is not shown in this table, and except from the point of view of loss in caloric value by excretion of sugar, the daily excretion is unimportant if blood-sugar estimations are made.

Besides the interest attached to the foregoing observations from the experimental point of view, we find that the estimation of the sugar in the blood may be of very great value from the practical point of view. The procedure finds its greatest clinical value in the diagnosis, prognosis and control of treatment in cases of

13. Rolly, F., and Oppermann, F.: Biochem. Ztschr., 1913, xlix, 278; referred to in The Blood-Sugar in Human Diabetes, Current Comment. THE JOURNAL A. M. A., Aug. 9, 1913, p. 418.
14. MacLeod: Diabetes. Diefmann and Stern: Biochem. Ztschr., 1906, i, 299.
15. MacLeod: Diabetes, p. 47.

diabetes mellitus. The finding of hyperglycemia alone does not prove the existence of diabetes mellitus, as we have shown that a transient increase in the amount of sugar in the blood may occur as a result of overfeeding with carbohydrates, or as a result of sudden discharge of glycogen from the liver. If, however, a hyperglycemia remains persistent after the withdrawal of carbohydrates from the diet for twenty-four hours or more, the case should be regarded as diabetes, even if the glycosuria disappears under these conditions. For example, in Case 2 the patient had glycosuria only at times, the sugar entirely disappearing from the urine after twenty-four hours on a carbohydrate-free diet. The blood after such a period showed 0.19 per cent. of sugar, which demonstrates that the case was not merely a transitory alimentary glycosuria, so-called, but a true case of diabetes. In Case 10, however, in which the patient had a glycosuria due to a cerebral disturbance, the blood twenty-four hours after sugar had been present in the urine showed a content of 0.111 per cent., or practically a normal content, even on a mixed diet. This would of course rule out a true diabetes mellitus. In any case of glycosuria, when there is doubt as to the true nature of the glycosuria, an estimation of the sugar in the blood, under proper control of the diet, should be made to make or disprove the diagnosis of diabetes mellitus.

As a guide to treatment and to the results of dietetic measures the estimation of this sugar-content of the blood is also of great value. We have long been accustomed to follow the excretion of sugar in the urine as an index to the progress of the case, though, as we have shown, the sugar-content of the blood, which is the primary condition, is not accurately indicated by the excretion in the urine. In cases in which it is possible, and this has been adopted as a routine in many European clinics, the results of treatment should be followed by blood-sugar estimations. Especially is this true when the sugar has disappeared from the urine. The time-honored method in such cases has been to determine the tolerance to carbohydrate by determining the amount necessary to cause a reappearance of sugar in the urine, and to give all that can be tolerated without glycosuria. We find that in many cases this is unjustifiable, as a patient may have constantly a blood-sugar content of 0.18 per cent. or even higher without the appearance of sugar in the urine.

For example, in Case 9, in Table 2, at the first examination of the blood after the patient had been rendered aglycosuric by a carbohydrate-free diet, a sugar-content of 0.127 per cent. was found. Following this the tolerance was tested, and it was found that the patient could take about 200 gm. of carbohydrate daily without a glycosuria. After six weeks on such a diet a second examination of the blood was made, and a sugar-content of 0.182 per cent. was found. It would manifestly be wrong to allow such a patient to continue on such a liberal allowance of carbohydrate, for though the urine was sugar-free, the presence of 0.182 per cent. of sugar in the blood may lead to various complications, and is almost certain to lead to a diminished tolerance to sugar. The diet regulation in such cases should aim at keeping the concentration in the blood at approximately normal, and not merely at keeping the urine sugar-free. In other cases, too, of very mild diabetes, unnecessary starving of the patient may often be avoided. The effect of the dietetic measures of the blood-sugar also affords a valuable key to the prognosis. In cases in which a normal concentration is easily reached and maintained, the prognosis should be good, though the other factors of acidosis, age of patient, etc., must always be taken into account. The actual amount of sugar found in the blood, as also the amount found in the urine, gives no guide to the severity of the case unless these observations are made after careful regulation of the diet.

In other forms of glycosuria the chief value of the blood-sugar determination lies in the ability of the clinician to rule out diabetes mellitus, and thus to find a better prognosis and often to allay the fears of the patient, who has in many cases been told that he has an incurable and rapidly fatal disease. For example, it has recently been shown[16] that in most cases of glycosuria occurring in pregnancy the blood-sugar remains normal or even slightly diminished, showing that the glycosuria is entirely of renal origin, and that it is by no means to be regarded as diabetes mellitus. In these cases, of course, the prognosis is good, and it is unnecessary to burden the patient with the dietetic regimen of a diabetic. Cases of cerebral glycosuria, so-called, are usually transitory, and occur after injury, or from pressure of a tumor, etc. As shown above, they are due to a disturbance of the center in the floor of the fourth ventricle. In these cases, as in Case 10, the blood-sugar rapidly falls to normal following the excretion of the sugar set free in the circulation from the liver. In such cases it may be of value to determine whether the glycosuria is a result of a cerebral condition or whether the cerebral symptoms are a result of diabetes, and this may readily be done by blood-sugar estimations under proper control. In cases of alimentary glycosuria[17] the hyperglycemia due to overfeeding with carbohydrates rapidly diminishes after the ingestion of carbohydrates is stopped, and such a test should be made when a transitory glycosuria is accidentally discovered. This transitory hyperglycemia and glycosuria are not to be regarded as diabetic symptoms, and one may often reassure the patient after a careful study of the case. This feature may come to be of value in life-insurance examinations, for though some of these patients later develop true diabetes, it is quite probable that an injustice is done in some cases by refusing insurance to them.

In conclusion I wish to thank those physicians who have so kindly cooperated in furnishing assistance and material for this work.

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16. Frank, Erich: Arch. f. exper. Path. u. Pharmakol., 1913, lxxii, 387, referred to in Renal Diabetes, editorial, THE JOURNAL A. M. A., Nov. 1, 1913, p. 1632.
17. The Variations in the Content of Sugar in the Blood, editorial, THE JOURNAL A. M. A., Jan. 10, 1914, p. 131.

Poisoning by Quinin Tablets.—Quinin poisoning is relatively rare because of the bitterness of the drug in the form in which it is usually taken. In Algiers, however, it is sold at a low price under government regulation in the form of tablets for the prophylaxis of malaria. These tablets are coated with sugar colored with carmin. The colored coating is so attractive to children that the tablets are readily taken in spite of the slight bitterness. H. Pecker in *Journal de pharmacie et de chimie* (Feb. 16, 1914, p. 162) reports a case in which a boy of 7 swallowed forty-five such tablets, containing in all 9 gm. of quinin hydrochlorid, or 6.6 gm. (102 grains) of the alkaloid. Death rapidly ensued; the child made some efforts to vomit, had convulsions, became comatose and died two hours after the ingestion of the poison. The attractive form and quick absorption of the drug were important factors in this accident.

sequent to the use of benzol, leads to the speculation as ... as well as of renal injury, and it is in these general

BENZOL TREATMENT IN TWO CASES OF LEUKEMIA

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Within the past eighteen months a new hope has dawned in the treatment of a disease heretofore regarded as hopeless: I refer to the use of benzol (benzene, C_6H_6) in the leukemias, the history of which dates from the publication of Koranyi's article in July, 1912. Koranyi's clinical use of this chemical was prompted, it should be said, by an almost accidental run of cases in Dr. Barker's clinic at the Johns Hopkins Hospital in 1909. These cases, briefly, were of three young girls whose occupation brought them into contact with crude benzol in the manufacturing trade; each presented evidences of a grave aplastic anemia and a striking leukopenia, and two of the three died. Prompted by this series of cases, Dr. Selling,[1] of the same institution, undertook certain experimental work, by which he demonstrated a powerful leukotoxic action of the drug.

On this ground Koranyi argued that benzol is what is needed in leukemia, and to him, of course, must be given credit for its clinical use, of which he says in his first article[2] that there were no failures under treatment and that no serious by-effects were observed. Kiralyfi[3] next reported seven cases of leukemia in which he had used benzol, in all of which the blood-picture and the clinical symptoms and signs subsided within from three weeks to five months. Then Stein[4] reported a case with very favorable results obtained after six weeks of treatment; Stern[5] reported another after two months of treatment; Dr. Billings[6] of Chicago added five others, with the suggestion of sufficient encouragement to prompt its further use. Klein,[7] writing from the large experience of twenty-two cases treated within six months, summarizes his experience by stating that though his results are not so encouraging as Koranyi's and Kiralyfi's, he still thinks that benzol is destined to play an important rôle in leukemia. Finally, Rösler[8] reports two cases apparently cured, and yet he adds the warning that the period of observation has been too short to permit of definite conclusions.

There are several references already to the use of benzol with more or less success in several allied conditions—enlargement of lymph-nodes without leukocytosis, the pseudoleukemias, polycythemia, etc.:[9] one a report of Lawson and Thomas[10] of its use in Hodgkin's disease with apparent cure, an observation all the more interesting because of the fact that in the same issue in which their report appears Drs. Billings and Rosenow,[11] in a preliminary report, seem to confirm the findings of Bunting and Yates of a specific organism in this disease. Kiralyfi[12] reports two cases of inoperable mammary cancer in which he applied benzol locally. In both cases cancer tissue was destroyed by direct contact of benzol, but extension beyond continued unmodified. He says that there can be no question of its curative influence in cancer, in the same way as the Roentgen ray, thorium, etc.

Even now, however, not all reports are so optimistic. Wachtel,[13] for instance, mentions two cases in one of which he was obliged to drop benzol because of albuminuria arising the third day; the second case showed apparent cure. Nevertheless, as he observes, the leukemia itself is not yet eradicated, as myelocytes are still present. Koranyi himself in a later report[14] mentions two (out of eight cases) of failure: in one the drug was not tolerated; in the other benzol failed, as did also the Roentgen ray and thorium. Quadrone and Buzzano[15] report little if any benefit in four cases treated. Klemperer and Hirschfeld[16] go further and regard it a dangerous remedy, as it caused serious injury in animal researches, to which Koranyi has replied that the conditions with a healthy experimental animal and the human being the victim of leukemia are very different propositions. They may have been influenced in their opinion, moreover, by the fact that they tried it in three cases of pernicious anemia, in two with no effect (as it seems would be expected from the action of the chemical), in the third they say with unmistakably curative effect, but no more than after arsenic.

On top of these more or less pessimistic reports are others which cause even more speculation. I refer to those of Jespersen[17] and Neumann.[18] The former cites a case in which, while benzol caused a prompt and marked drop from a high number to below normal within the expected time, until the patient was considered well, yet the remarkable improvement did not last long, the disease flared up again, leukocytes ran up to 750,000, and the patient died the twenty-second day after recurrence of the symptoms, the dosage never exceeding 5 gm. daily. Neumann warns against building too high hopes on the treatment: he treated a case on Koranyi's plan and in thirty-six days so much improvement occurred that the patient felt that she was cured; but soon afterward the general health grew worse and worse, fever and diarrhea followed, with epistaxis, stomatitis and rhinitis, and she died thirty-nine days after the course of benzol. The similarity of these two cases of two observers, in both of which a chronic case evidently took on an acute phase coincident with, or sub-

1. Selling, L.: Benzol as a Leucotoxin, Johns Hopkins Rep.: Monograph, New Series, No. II.
2. Von Koranyi, A.: Effectual Modification of Leukemic Blood-Picture by Benzol, Berl. klin. Wchnschr., 1912, xlix, 29; abstr., THE JOURNAL A. M. A., Aug. 31, 1912, p. 755.
3. Kiralyfi, G.: Benzol in Treatment of Leukemia, Wien. klin. Wchnschr., 1912, xxv, No. 35; abstr., THE JOURNAL A. M. A., Oct. 5, 1912, p. 1333.
4. Stein: Wien. klin. Wchnschr., Dec. 5, 1912; abstr., Progr. Med., June 13, p. 328.
5. Stern, S.: Benzol in Leukemia, Wien. klin. Wchnschr., 1913, xxvi, No. 10; abstr., THE JOURNAL A. M. A., April 10, 1913, p. 1270.
6. Billings, Frank: Benzol in the Treatment of Leukemia, THE JOURNAL A. M. A., Feb. 15, 1913, p. 495.
7. Klein, S.: Action of Benzol on Leukemic Process, Wien. klin. Wchnschr., 1913, xxvi, No. 10; abstr., THE JOURNAL A. M. A., April 10, 1913, p. 1270.
8. Rösler: Wien. klin. Wchnschr., 1913, xxvi, 838; abstr. Am. Jour. Med. Sc., October, 1913, p. 608.
9. Kiralyfi, G.: Therapeutic Use of Benzol, Wien. klin. Wchnschr., 1913, xxvi, 1062; abstr., Am. Jour. Med. Sc., January, 1914, p. 145.
10. Lawson, G. B., and Thomas, E. A.: A Case of Hodgkin's Disease Treated with Benzene, THE JOURNAL A. M. A., Dec. 13, 1913, p. 2157.
11. Billings, Frank, and Rosenow, E. C.: Etiology and Vaccine Treatment of Hodgkin's Disease, THE JOURNAL A. M. A., Dec. 13, 1913, p. 2122.
12. Kiralyfi, G.: Benzol in Local Treatment of Cancer, Berl. klin. Wchnschr., 1913, L, No. 43; abstr., THE JOURNAL A. M. A., Dec. 6, 1913, p. 2110.
13. Wachtel, S.: Benzol in Leukemia, Deutsch. med. Wchnschr., 1913, xxxix, No. 7; abstr., THE JOURNAL A. M. A., March 22, 1913, p. 949.
14. Von Koranyi, A., and Tedesko, F.: Benzol in Treatment of Leukemia, Wien. klin. Wchnschr., 1913, xxvi, No. 4; abstr., THE JOURNAL A. M. A., March 13, 1913, p. 707.
15. Quadrone, C., and Buzzano, C. U.: Benzol in Leukemia, Riforma Med., 1913, xxix, Nos. 42 and 43; abstr., THE JOURNAL A. M. A., Dec. 13, 1913, p. 2202.
16. Klemperer, G., and Hirschfeld, H.: Therap. d. Gegenw., 1913, liv, No. 2; abstr., THE JOURNAL A. M. A., March 15, 1913, p. 872.
17. Jespersen, K.: Fatal Result Following Benzol Treatment of Leukemia, Deutsch. med. Wchnschr., 1913, xxxix, 1300; abstr., Am Jour. Med. Sc., November, 1913, p. 766.
18. Neumann, W.: Benzol in Treatment of Leukemia, Therap. d. Gegenw., 1913, liv, No. 2; abstr., THE JOURNAL A. M. A., March 15, 1913, p. 872.

sequent to, the use of benzol, leads to the speculation as to whether the benzol itself had anything to do with the conversion, in answer to which Jespersen expresses the belief that the flare-up was due not to benzol poisoning, but to a recurrence of leukemia in an acute form. Neumann, too, admits that it is a very effectual remedy, but naturally adds that its use requires the greatest caution; we are left to draw our own conclusions.

One may cite a warning from Meyers and Jenkins[19] of Albany, who remark that its institution is so recent and clinical experience still so scanty that definite conclusions as to its intrinsic value should be held in abeyance. They comment on a lack of uniformity in action, a fact which hitherto has not been emphasized, so far as I have seen.

In all cases it reduces white cells, but in some, apparently those with very high counts, it does not reduce the leukocytes to normal; while in cases of from 100,000 to 200,000 it may give brilliant results with normal white counts, greatly diminished or normal spleen, distinct gain in weight and strength, and loss of fever. On the other hand, there may be paradoxical reactions, with falling white counts and gain of strength, with no change in the spleen; we may find a decrease of the spleen with a persisting high leukocyte count, or there may be sudden leaps in the number of white cells. They suggest, therefore, that the effect of benzol be carefully checked by daily blood examinations so as to gage the optimum dose and to forestall any symptoms of benzol poisoning.

I need refer to the chemistry of this drug simply to call attention to the fact that benzol is benzene, not benzine; its formula is C_6H_6. It is a product of the fractional distillation of coal-tar, while benzine is a product not of coal-tar, but of crude petroleum. It is also necessary to say that the benzol of internal medication should be chemically pure, as the commercial product contains in addition variable quantities of toluol, xylol and other foreign admixtures.[1]

Its toxicology so far as I know has not been completely worked up, except with reference to Dr. Barker's cases at Johns Hopkins, in which evidences of grave toxemia, of purpura and of a progressive increase of anemia and leukopenia were the signs. The only reports of cases coming to necropsy after the clinical use of the drug, so far found, are from Mühlmann:[20] In a case of lymphatic leukemia, a total of 175 gm. of benzol was given in six months, with marked improvement, so that the chemical was suspended after two weeks; this was followed by an increase in the leukocytes, again reduced by benzol, again to rise, with death following; at necropsy, extensive necrosis of the liver-cells was found. In the same abstract from which this report is taken it is said that Neumann has reported similar findings of necrosis of the liver in a case of myeloid leukemia after benzol, and that Pappenheim found the same necrosis in the livers of rabbits given benzol. Such experience, though limited to two clinical cases of the number already reported, points to the wisdom of keeping as close supervision over the functions of the liver as we are permitted during a course of benzol treatment. Aside from these signs of injury to the blood and blood-making tissues, and to the liver, one would naturally expect to have evidences of gastro-intestinal irritation, as well as of renal injury; and it is in these general directions, as well as through constant watch over the blood-changes, that I have gaged the gradual increase of dosage, so far without known deleterious action in any way.

This leads to the further remark that there seems to be no definite dosage of the drug. Koranyi begins with a dose of 0.5 gm. three or four times daily, combining it with an equal quantity of olive-oil, dropped immediately before administration into capsules. With this start it seems that the dose is gradually increased, according to the temerity of the individual observer, until some effect is noted on the blood-picture; several of them adding the precaution that at the time a decided drop in the total count is noted, it would be better for the dose to be held stationary, decreased, or the drug stopped altogether for the time being, for fear that too severe a destructive action on the blood-forming tissues might be realized. It seems to follow, therefore, that its administration cannot be carried out safely, for the dose cannot be gaged otherwise than with constant recourse to blood examinations.

It should be noted further that in most of the reports at present available, the use of benzol seems to have been preceded for a longer or shorter time by the Roentgen ray; lately, it seems, because in some way the preliminary use of the rays beneficially prepare the soil for the subsequent use of benzol. So, except by inference, it is hard to measure the part played by the benzol in the good result, with the proviso that in almost each case the Roentgen ray alone had failed to do any striking good. It is then an added duty to place on record two cases under my observation in which the Roentgen rays had never been used.

CASE 1.—*Splenomyelogenous leukemia.*

History.—A boy, aged 13, was first seen Aug. 18, 1913, complaining of abdominal swelling, to the family's best knowledge of only a week's duration, and referred through the kindness of Dr. George A. Wright of Chilhowie, Va. The family history has no interest at present. Until four years ago the patient had enjoyed good health, when an attack of "bronchitis" came on, lasting some white; since then there had been no definite illness, but the patient has never been robust. He had had no infectious disease except measles and whooping-cough. For some months past he had had headaches nearly every day until two or three weeks ago, since when there had been none of moment. There had been no prolonged cough since recovery from bronchitis; recently there had been pain across the lower front of the chest. In all other respects the past history was negative. The boy has followed the pursuits common to boys of his age, with the exception that for the past several months his play has been less vigorous, and he has had to rest oftener. About the middle of last June he fell from a fence on his back; for an hour or so he suffered with his back; it hurt him to straighten up, but he could get around; later the same day there was a pain in the chest and it hurt to breathe; this passed off within an hour; afterward he knew of no ill consequences from this fall. He resumed his usual mode of life until two weeks ago, when he became unusually "puny," and ached all over; the ache was worst in the head, but he was still going about, though tiring easily. One week later, that is, one week before admission, abdominal enlargement was first noted. Up to that time nothing wrong had been detected in the abdomen. When discovered the swelling of the abdomen was said to have been as prominent on one side as the other, but with only about half as much enlargement as at this time. With this exception he feels now as well as at any time for the past several months.

Examination.—This was negative, with the following notable exceptions: Normal development, but moderate emacia-

19. Meyers, Jerome, and Jenkins, Thomas: Benzol in Treatment of Leukemia, read before Med. Soc. State of New York; abstr., THE JOURNAL A. M. A., May 17, 1913, p. 1575.

20. Mühlmann: Deutsch. med. Wchnschr., 1913, xxxix, No. 43; abstr., THE JOURNAL A. M. A., Nov. 29, 1913, p. 2022.

tion, the size of the abdomen in striking contrast. Mucosa pale, without cyanosis; a lemon-yellow pallor; scattered areas of pigmentation. Lower eyelids slightly puffed. Tonsils slightly enlarged. Lymphatics palpable but not appreciably enlarged. Pulse regular, 104 to the minute, blood-pressure 104 mm. Temperature at 3 p. m., 100.5. Heart's apex displaced into the fourth space, well up toward the left armpit, evidently by being crowded up from below. Marked precordial pulsation; otherwise negative. Superficial veins over anterior chest enlarged and prominent. Breathing upper thoracic. Cardiac dulness begins at second rib, liver dulness at fifth rib; below which lines cardiac, splenic and hepatic dulness and flatness fill the remainder of the thoracic cavity; and in the backs, dulness and flatness from the lower angles of the scapulae. Abdomen markedly distended, asymmetrical, larger swelling on the left side. A tumor occupying almost the entire abdomen, leaving free only a small portion of the right flank, a small crescent underlying the right subcostal margin, and another small area across the lower abdomen: the edge easily felt, sharp and firm, a notch or two as of the spleen; the tumor itself smooth, slightly tender, its greatest prominence in the left lower quadrant, continuing up to be lost under the left costal border. The liver is apparently not enlarged downward at this time. Leukocytes: 372,000 per cubic millimeter. An accurate differential seemed impossible: many myelocytes, eosinophils and polymorphonuclear elements. Red cells largely overshadowed by the leukocytes, but apparently show negligible abnormality. No nucleated reds seen. Hemoglobin (Sahli), 55 per cent., red blood-cells, 3,072,000 per cubic millimeter.

Treatment was delayed until August 23, after which date it has been faithfully followed, as will be noted from Table 1. The hemoglobin has hardly varied from the time of beginning treatment until benzol was suspended, in spite of which the boy's color showed splendid improvement. The red blood-cells persisted at about the same level of moderate anemia, until the count a month after beginning treatment, when they had jumped up 2½ million, to above the normal line. The urine has never given serious concern; only once has a mere trace of albumin been recorded, and twice a rare cast. As the output of urine held constant, and there were no symptoms of ill health, we have regarded the kidneys as being normal for the condition of leukemia, in which copious output of the amorphous urates and of more or less albumin and casts are frequent findings. Only once has there been any intestinal upset, a day of diarrhea, which cleared up without trouble after a dose of oil.

Our principal concern is naturally with the white cells. A number of reports indicate that at the beginning of treatment these may rise, and so they did in this case, reaching the mark of 499,000 cells within a

TABLE 1.—COURSE OF SPLENOMYELOGENOUS LEUKEMIA IN CASE 1

Date 1913-	Hgb. Per Cent.	R.B.C.	W.B.C.	Differential*	Spleen	Urine	Dose Drops	Remarks
8/18	55	3,072,000	372,000	Many myelocytes and eosinophils; no blasts	Four-fifths of cavity	Opaque; 1.020 no alb. or casts	.....	First examination.
8/23	..	.....	.....	.....	Same	.....	5	Treatment started.
8/25	..	.....	499,000	.....	.....	Same	7.5	.....
8/28	..	.....	452,000	.....	Slight change	.....	10	.....
8/30	..	.....	404,000	.....	.....	.....	12	Allowed to visit home.
9/ 1	52	3,172,000	428,000	.....	.....	.....	15	Girth 28½ inches; return to hospital.
9/ 4	..	.....	358,500	.....	.....	.....	17	Can button trousers.
9/ 8	..	.....	398,000	.....	.....	.....	20	After visit home; put to bed 2 hours a. m. and p. m.
9/13	..	.....	349,000	.....	.....	.....	20	.....
9/16	53	3,180,000	373,000	.....	.....	.....	22	.....
9/19	..	.....	185,000	.....	Diminish	.....	22	.....
9/24	..	.....	122,000	Myeloc. fewer; eosinop. same; no blasts	.....	1.023; occasional hyaline cast & w.b.c.; no albumin	22	.....
9/26	..	.....	.....	.....	.....	1.021; no alb., cast or w.b.c.; full of urates	None	Day of diarrhea; castor oil.
9/27	..	.....	128,000	.....	.....	.....	24	At home one week
10/ 4	..	.....	41,000	.....	Right abdomen clear	1.022; alb. s.v.t., occasion, w.b.c., no casts	24	Returned to hospital each week for observation.
10/11	..	.....	10,600	.....	Left side 1½ ins. below navel	Rare cast, occas. w.b.c., moderate urates	20	.....
10/18	..	.....	6,600	.....	Barely to be felt, left costal margin	.....	None	.....
10/25	..	5,608,000	8,400	Few myeloc. and eosinophil.	1 inch below ribs	.....	10	.....
11/ 1	67	5,888,000	9,750	.....	Same	.....	12	.....
11/ 8	60	5,608,000	9,000	P., 71%; S., 18%; L. & T., 3%; My., 4%; Mz., 3%; E. 1%.	Rib-margin	1.014; cloudy; heavy phosphates	None	Blaud's, t.i.d.
11/15	..	.....	10,800	.....	1½ inches below ribs	.....	None	Blaud's, t.i.d.
11/21	..	.....	10,900	.....	Same	.....	None	Blaud's, t.i.d.
11/29	..	.....	11,800	.....	Same	.....	None	Cold several days.
12/ 6	..	.....	9,600	P., 76%; S., 18%; L. & T., 1%; E., 1%; Mz. (?), 2%; My. (?), 2%	½ inch above level navel	.....	None	Blaud's continued.
12/20	..	.....	10,400	.....	1 inch below level of ribs	.....	None	Just recovering from attack of mumps of 2 weeks' duration.

*P., polymorphonuclears; S., small mononuclears; L. & T., large mononuclears and transitionals; My., myelocytes; Mz., mast-cells; E., eosinophils.

day or so after beginning treatment. From this time there was a very slow and gradual drop, with occasional flare-ups, for four weeks, when, within three days, the count was cut in half, namely, a drop from 373,000 to 185,000. During this time the dose of benzol had been 22 drops three times daily, or approximately 4 gm. daily. Ten days later the count had dropped to 41,000; the patient had lost two-thirds of the cells he had ten days before, and had less than one-tenth of the number with which he began five and one-half weeks before. Two weeks later still, the count was 6,600; that is, seven and one-half weeks after beginning with a count of approximately 400,000, he had a leukopenia. At this date benzol was suspended, but given for two weeks a little later when they rose again to 9,750. Since then the patient has had no benzol (two months), the counts varying between 9,600 and 11,800, the latter count being coincident with an acute cold of several days' standing.

I should especially like to call attention to one point: we noted that each one of the flare-ups recorded in the patient's early history under benzol followed visits to his home, and promptly subsided after coming back to the hospital; and, still more positively, the great drop came after we had instituted the plan of putting the patient to bed for two hours each forenoon and afternoon. In a word, we believe now that we shall put the next patient to bed during the early stages of treatment, at least, and we shall expect faster and more steady improvement, other things begin equal.

No definite differential count was made until late in treatment. It was noted, however, from time to time, that the numbers of myelocytes and eosinophils were lessening; until November 8, the count of 71 per cent. polymorphonuclears, 18 per cent. small mononuclears, 3 per cent. large mononuclears, 4 per cent. myelocytes and 3 per cent. mast-cells with 1 per cent. eosinophils was recorded, and great difficulty was encountered in classifying the cells, probably because of degeneration. With the later counts the same difficulty persisted, in which it was thought, however, that 2 per cent. of the cells were definitely myelocytes. One notes with dissatisfaction the continued presence of this abnormal cell, in spite of general improvement; and this reminds us that Wachtel comments on the same persistence of the abnormal cell in one of his cases — the leukemia must still be active.

The spleen, coincident with the lessening of the leukocytes to the normal, showed a progressive shrinking, until at the time that the leukocyte count was 6,600, it was no longer palpable. It might be mentioned that before any positive differences in size could be observed, there was a very marked difference in the "feel" of the organ, it being much softer, and its edges harder to identify; the boy himself remarked that he knew it was smaller because he could now button his trousers about his waist. Since the suspension of benzol the size of the spleen has fluctuated, being noted as at the costal margin to within 1 inch of the level of the navel, and reminding us of Jenkins and Meyers' observation, not always lowest when the count was highest; the count was lowest when the spleen was largest, in this post-benzol course. At the last observation it was 1 inch below the rib-margin.

A final point might be of interest: While the disease was most active, the patient's temperature ranged each day from 97.6 to about 101, with occasional rises as high as 102.5. With the drop in leukocytes came a drop in temperature, its range being practically normal, except with the complications of cold and mumps, since October 4.

Koranyi is authority for the statement that the lymph-nodes seem to be less influenced by benzol therapy, and Selling's experiments seem to confirm this view, which, if correct, would lead one to expect little influence in the lymphatic type. Klein, however, was unable to detect any difference in the effect between the various forms of leukemia. With this encouragement, and because no other available treatment has had the least influence, and also because of its remarkable effect in the first case, I was tempted to use it in the second, which has already been reported.[21]

CASE 2.—*Lymphatic leukemia.*

History.—A colored man, aged 56, laborer, patient of Dr. G. V. Litchfield, Abingdon, Va., came under observation March 18, 1912, complaining of painful swelling of the right leg. His family history is unknown. He has enjoyed good health in the past. He had "chills and fever" as a boy in Alabama, with no return, and tonsillitis two years ago; the history otherwise was clear. He denies absolutely any venereal infection, though he says that he is the father of thirteen children, only two of whom are living, the eleven dying at ages from 6 months to 8 years of various diseases; none were still-born, and his wife has had no miscarriages. His average weight is from 165 to 170; he weighs to-day 168. He says that he was perfectly well four months ago, when suddenly a pain struck him behind the right hip radiating down the inner side of the thigh to the knee; he continued his work as an ordinary laborer, could hardly get home at night on account of the painful leg, and has not been able to work since for that reason only. Twelve hours after the onset of pain he first noticed "kernels" in the right groin, and about the same time swelling began in the thigh and has been increasing gradually since. Four weeks later he noticed enlargement of glands everywhere. Otherwise he feels perfectly well.

Examination.—The general lymphatic enlargement of lymphatic leukemia is revealed, with enlargement also of liver and spleen, the greatest swelling being of glands of right groin, which has apparently dammed off the lymphatic circulation of the right leg, producing a hard brawny swelling of that extremity, analogous to elephantiasis. The leukocyte count was 400,000, of which the small mononuclears averaged 96.5 per cent.

Treatment and Course.—Since March, 1912, the patient has been taking arsenic and other indicated treatment at irregular times, until Sept. 22, 1913, when at my request Dr. Litchfield referred him back to us for a trial of benzol therapy. At this time he says that he is about in the same condition as before except that the leg and the scrotum are more swelled and swelling is beginning to appear in the other leg. The legs and lymphatics are even more enlarged and brawny than on last examination. The right leg is in a condition of extreme elephantiasis evidently from lymph stasis; the left leg is fast becoming in the same condition from the same cause, and the penis and scrotum are also much enlarged.

The white cells on this date were 1,059,000, and after a search of the whole slide only 2 polymorphonuclears and 2 eosinophils could be found.

Passing over many remarkable features of this case, one notes a jump (Table 2) from 400,000 to over 1,000,000 white cells within one and one-half years, of which about 98 per cent. are small lymphocytes; a pure case of lymphatic leukemia.

Aside from a comparatively small drop to 730,000 and 708,000 cells within a few weeks of treatment with benzol, which counts are quite questionable, being made by another who acknowledges possible error in handling

21. Smith, F. H.: Case of Lymphatic Leukemia, Old Dominion Jour. Med. and Surg., 1912, xiv, 371.

the figures, there has been no improvement in the blood-picture worth noting since; the counts later ranging from 956,000 to 1,200,000 even on 35 drops of benzol three times daily, treatment having been continued three months. The patient says that the flexibility of the legs is increased, but it is hard to see how, as their "feel" and appearance have not shown any marked change.

So far we have not noted any toxic manifestations, but are ready to discontinue treatment because it has been ineffectual. Certainly our experience is against Klein's; we can see no benefit at all in this single case of lymphatic leukemia from the use of benzol, though, of course, having nothing better to offer, we should feel tempted to try it another time.

Our attitude toward the drug in the myeloid type is altogether different.

Summarizing our impressions here, there can be no doubt that benzol is a remedy of remarkable potency in myeloid leukemia. My own case confirms this favorable impression: benzol accomplished feats hitherto undreamed of in the rapid subsidence of signs and symptoms in a fatal disease.

Beyond a doubt also it is a two-edged sword, as Billings says, and he who uses it without bearing in mind its grave possibilities is running a serious risk of substituting for one disease a still more fatal one.

At the risk of too great length, I cannot pass this point without emphasis. Already the late articles assume significant tones. Barker and Gibbes,[22] for instance, evidently share the belief of the many as to the efficiency of the drug, but they take pains, as it were, to emphasize, among other points, the fact that benzol does possess dangerous toxic properties, wherefore their suggestion that its use for the present be limited to hospital patients, that the drug may be given a fair trial and not be allowed to fall into undeserved disrepute. Kiralyfi, in his latest article,[9] seems to be prompted by the same desire to warn of its dangerous side. He adds a case similar to those of Jespersen and Neumann, of death after uncontrollable nosebleed and a drop of leukocytes to 460, and unhesitatingly states that this death was due to the continuance of the action of benzol pushed too far. Hence his advice as to caution, to stop the benzol when the leukocytes have dropped to 25,000.

I believe, therefore, that granting even a specific action, it can hardly become a popular remedy, because its dosage, etc., must be gaged by frequent examinations of fresh blood.

After all, we have no proof yet that benzol is specific. So long as myelocytes exist, leukemia must still be active. It is significant that not one clinician has yet expressed himself with reference to the future of these patients. Are we to believe, as the optimistic reports would tacitly allow us to, that in benzol we have a specific? Or are we to believe that treatment will have to be continued periodically and indefinitely, like thyroid therapy? Or will the time come in many cases when in spite of, if not because of, benzol treatment, the leukemia will return in fulminant form, and the patient rapidly succumb in acute exacerbation? Time alone will reveal.

Hesitating to be the fool to rush in where angels fear to tread, I hazard the guess that within the next six months the journals will contain numerous reports of recrudescences of the disease after benzol suspension. It is a remarkable remedy, spectacular in its effects, deserving of the utmost respect as well as caution in its administration, yet, I fear, not a specific.

TABLE 2.—COURSE OF LYMPHATIC LEUKEMIA IN CASE 2

Date 1912	Hgb. Per Cent.	R.B.C.	W.B.C.	Differential	Glands	Urine	Dose Drops
3/18	77	3,600,000	400,000	P., 1%; S., 94%; L., 5%; E., 0%.	All large and hard	.....	.....
3/27	..	.....	479,600	S., 98.4%	.....	.....	.....
1913 9/22	..	.....	1,059,000	2P. and 2L. and 2E. to slide	Tremendous groups of glands; elephantiasis right leg and scrotum	.....	20
10/ 6	..	.....	730,680	.....	No commensurate clinical change; count faulty (?)	.....	20
10/13	..	.....	708,000	.....	.....	.....	.....
10/27	..	.....	973,000	No change	Softer	.....	25
11/ 3	..	.....	1,088,000	.....	Softer; legs more flexible	.....	30
11/16	..	.....	956,000	No change	Inguinal glands softer; knee flexes better	.....	35
11/24	..	.....	1,214,000	.....	.....	Amber; clear; sl. floc. sed.; acid; 1,019; alb., neg.; urobilinogen 0; microscopic, 0	35
12/ 2	..	.....	998,000	.....	.....	.. ..	.....
12/ 9	..	.....	968,000	.....	Feels well, no toxic symptoms; flexion better.	Normal	None
12/22	..	.....	1,096,000	.....	Shortness of breath (diurnal and nocturnal); digitalis.	.....	None

22. Barker, L. F., and Gibbes, J. H.: Treatment of Leukemia with Benzol, Bull. Johns Hopkins Hosp., 1913, xxiv, No. 274; abstr., THE JOURNAL A. M. A., Dec. 20, 1913, p. 2272.

Early Anesthesia.—We are so accustomed to think that anesthesia was discovered about the middle of the nineteenth century in America that we forget that literature is full of references in Tom Middleton's (seventeenth century) phrase to "the mercies of old surgeons who put their patients to sleep before they cut them." Anesthetics were experimented with almost as zealously during the latter half of the thirteenth century as during the latter half of the nineteenth century. They were probably not as successful as weare, but they did succeed in producing insensibility to pain, otherwise they could never have operated to the extent they did. Moreover, the traditions show that the Da Luccas particularly had invented a method that left very little to be desired in this matter of anesthesia.—Walsh: Makers of Medicine.

CASES OF INSANITY ARISING FROM INHERENT MORAL DEFECTIVENESS

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The conclusions reached in this paper are based on observations made in the psychiatric wards of St. Francis Hospital, in the neurologic service of the Western Pennsylvania Hospital, and in the Juvenile Court of Pittsburgh.

Among writers on mental diseases, there is a lack of uniformity as to precisely what is meant by moral insanity. In this article the term moral insanity is applied to those persons who are irresponsible through an inherent deficiency of moral sense. They fall largely into two classes: those who commit their so-called immoral acts deliberately, and those who commit them on the impulse of the moment. Such irresponsible persons are to be found in every community. They are unmoral rather than immoral; I shall designate them as unmoral.

There is a standard, or average, of morality in any social group, which is recognized and followed in some fashion by the majority of its members. Yet, while the group as a whole adapts itself with fair uniformity to the established moral code, the individuals comprising any complex social organization represent a wide range of appreciation of moral values. There are innumerable gradations of the moral sense, just as there are innumerable gradations of ability in the realm purely of the intelligence. By the morally insane, however, is meant those who evidence no moral feeling whatever, or evidence it in so slight a degree as to make them unfit for free participation in the community life. The moral sense of these persons cannot be developed by education. Their appreciation of a moral world is either inherently lacking or so rudimentary as to place them, like the imbecile from enfeebled intelligence, in the category of the irresponsible. While we differentiate here the moral and the intellectual fields in mental life, deterioration in the one is usually accompanied by more or less deterioration in the other. Yet it is nevertheless true that the capacity of an individual purely on the side of his intelligence and his ability to appreciate moral values may differ in a great degree. It is not an uncommon thing to see a man of high intellectual endowment functioning morally on a low plane. Through the keenness of his intelligence he is able, in spite of his moral transgressions, to maintain, unrestrained, his existence in his community. Tanzi,[1] in speaking of the more intellectual types of unmorals, says:

> The character of these persons, who are incorrigible in their immorality . . . is calm, frigid, slow, reflective, and, in general, rather particular about legality. . . . Their egoism is not a torrent that suddenly overflows and then subsides, but a broad and majestic river that has prudence for an embankment, and goes on its course without disturbance or hindrance. We find among these insensible immoral persons the poisoners, the great swindlers, the promoters of fraudulent enterprises, the political desperadoes who stop at no trickery, except to clothe it skilfully in legality.

Persons who belong to the calculating type of constitutional unmorality, or moral insanity quoted above, do not often reach the alienist. It is the impulsive type that more frequently falls into our hands. Persons of the latter type commit their immoralities, so-called, without deliberation. They are restless, unthinking, driven by the emotional impulse of the moment. Their impulsiveness, restlessness and lack of emotional balance drive them into adventures and indiscretions that almost certainly bring them in the end under the stigma of lunacy, or of criminality. They are likely to fall into drunkenness and to contract venereal diseases. Such persons are to be found in the ranks of the tramps, the prostitutes, the burglars, etc. The anomalous character make-up, however, is the same kind of anomaly that characterizes the colder and more deliberate of the morally insane. There is the same inherent lack of altruistic instincts. These persons seem to have no sense of the necessity for property rights; they cannot see the reasons for honesty. They do not grasp the principles lying back of those rules of conduct which society recognizes as necessary for its preservation. Morally, they are children, unable to understand why they should not take what they want regardless of the other fellow's rights.

The diagnosis in cases of moral insanity is as clear and definite as in any other field of mental derangement. Certain anomalous traits are displayed with unfailing regularity. A careful history, however, covering as much as possible of the patient's life must be obtained. We are dealing here with a congenital anomaly; its manifestations, therefore, exist early, though they often go unheeded.

The following characteristics apply especially to the more impulsive of the morally insane; the cases cited fall within that class. The traits these persons most commonly display early in life are: excessive irritability, stubbornness and outbursts of passion, as well as exceptional selfishness, cruelty and restlessness. Here is found the unmanageable child, often referred to by fond parents as "spoiled." Such children persist in thefts after repeated punishment. They do not outgrow the childish habit of lying. They seem to develop no sense of shame or of self-blame for misdemeanors. They show lack of concentration and inability for sustained attention. Their school life is often irregular, marked by pranks, turbulence and even expulsion. Very early they are attracted to the play side of life. They want gaiety, which later leads them into dissipation.

The age of puberty is of especial moment in these cases; characteristics tend to become more pronounced. What was earlier looked on as mere mischief or perversity is now seen to be of serious import. Improvidence and extravagance become prominent traits. The desire for selfish gratification leads to acts of flagrant dishonesty. Relatives learn to look for missing valuables in the pawn shop. Fathers must stand between forgeries and the law. These persons apparently learn no lesson from experience. They are incorrigible. In spite of repeated punishment they go heedlessly on, committing their offenses again and again.

The first case to be cited presents, in addition to the traits already mentioned as marking the impulsive type of the morally insane, the fairly typical characteristics of popularity and plausibility. This patient showed fine physical development — often the case in these persons. He presented, also, the frequently seen manifestation of pronounced egotism, with aspirations for artistic or literary attainment entirely beyond his capacity, along with the usual inability to see any necessity for preparation or apprenticeship in his chosen art. Such childlike

1. Tanzi: Mental Diseases Rebman Co., 1909, p. 697.

fanciful wishes frequently mark these unmorals, showing their close relationship to certain types of early dementia praecox.

The patient was referred to me for alcoholism. His friends believed that all his vagaries and transgressions were occasioned by his addiction to alcohol. They thought that if this were overcome he would be transformed into a normal and useful individual; but his conduct, during my first visit, while he was under the influence of liquor, was such that a tentative diagnosis of moral insanity was made — a conclusion which his history, which was obtained later, definitely confirmed. Though not very drunk the patient was entirely without any feeling for the amenities. Though he had lived all his life in an environment of the finest breeding, he showed no sense of shame and no hesitancy about creating a scandalous scene in which his young bride, as well as his father and mother, were exposed to vulgar publicity. In the case of an alcoholic in similar circumstances there would, ordinarily, have glimmered through his intoxication some automatic sense of the proprieties to which he had been accustomed. The patient became violent and obscene and was quieted only on the appearance of a policeman with handcuffs. When this definite and unassailable authority appeared, the patient, like a child that had been spanked and thoroughly conquered, at once pleasantly and even delightedly acquiesced in the plans being made for his removal to a hospital. Having adapted himself to the inevitable state of affairs and feeling himself the center of the stage, he became like a child interested in a new toy. He was the friend of everybody; he would go anywhere, do anything. This cheerful adaptability to the inevitable (such as the unvarying routine of life in an asylum) is typical of the constitutional unmoral; it is not characteristic of the alcoholic, who is the bane of his ward, sulky, restless, never satisfied.

CASE 1.—Mr. B., the 30-year-old son of cultured and affluent parents, was referred to me, in January, 1912, for alcoholism. His previous history revealed the anticipated facts. The father, mother, brother, and wife, were seen separately. The statements of each corroborated, even in minute details, those of the others. The patient had been headstrong, "bull-headed," all his life. If he wanted a thing he had always insisted that he must have it, regardless of whether it was advisable, or within his parents' means. He had been sent to school after school but had never studied. He had been popular with his schoolfellows, taking an active part in athletics, often managing teams and clubs. He had been extravagant, always wanting money, and never satisfied with the amount that could be given him, though he had as much as his companions. He would borrow from any one who would lend and seemed to have a knack of getting money from nearly every one he approached. He would pawn his jewelry and that of his relatives. He has been drinking since a boy. His family has never been able to depend on a word he says. He never kept up enough sustained effort to finish any given work, but was always changing from one thing to another. He has aspirations for literary and artistic success, which have been encouraged by his father, though the latter said that his son would not go through the drudgery necessary to acquire technical ability; and that his literary productions are worthless. Efforts have been made to establish the patient in various kinds of business; but the only money he ever earned was a few weeks' salary while kept in an office through his father's influence. He squandered a fortune abroad while presumably engaged at his art studies. Since the patient came under my care the father bought for him an expensive villa, fitting up a luxurious studio. In two months the latter tired of it, as if it had been an outworn toy, his dissipations meanwhile being as marked as ever. He then took various "cures" and was finally taken to the country, where he has since been living.

The fact is to be noted that in the preceding case, as well as the following one, the patient grew up in the best of home surroundings, side by side with a brother who, in each instance, developed into a normal average man. Environment, therefore, cannot be held responsible for the anomalous character development of these two persons.

CASE 2.—Mrs. S., aged 31, came into my service in June, 1913. Her heredity was bad, especially on her father's side, in whose family tuberculosis and alcoholism were pronounced, though neither was present in her father. Her mother, a very refined woman, died of cancer; her only sister, of epilepsy. A history was given of restlessness and sleeplessness during infancy, which lasted until her sixth year. As a child, she was of a nervous, impulsive, self-willed temperament, easily distracted from the duty in hand.

At puberty these characteristics became more pronounced; and a tic, or jerking of the head, developed. A neurologist was at this time consulted. Her distractibility increased; she took no care to keep appointments; she became more wayward and self-willed, insisting on her own way regardless of the convenience or rights of others. She was educated by private tutors until she was 15. She never studied—"got along somehow." Arithmetic was impossible to her. She was then sent to a boarding-school, where she was very popular, though she often got into trouble with her teachers, but was usually able to "fix it up with them." She was cunning, plausible, an inveterate liar; extravagant, spending money with the wildest foolishness. She would run up enormous bills, borrow from everybody and pawn everything available. She was of splendid physique, an unusually handsome girl. At 18 she ran away from school to marry a man of apparently similar mental make-up. Then followed three years of the glittering "play side" of life—poker, drinking, a "good time." Advice and pleading had no effect. Finally her parents took her home. A divorce was obtained, and about six months afterward she remarried. She lived with the second husband two or three years and a child was born. The old dissipations were giddily followed during this time. A separation occurred, and she again returned home, where for two or three months she kept house for her father, being thrifty and contented. Then suddenly she disappeared, and was found three months later in New York living with the man she had divorced. Though in miserable surroundings she was gay and contented. She was again brought home. During the following years numerous attempts were made to keep her, with her father and child, in private boarding-houses; this was impossible owing to her escapades of drinking, etc. From her girlhood she has had a childlike fanciful wish that she wanted to be a nurse—a desire discouraged by her family. But during these years with her father this wish was encouraged in order to give her an interest. She began training at various times in four different hospitals; but never got beyond probation. She began to be arrested repeatedly for drunkenness and disorder. During the year preceding her admission to the hospital, pathologic drunkenness—amnesia, automatisms etc.—became manifest. While in these states she would threaten to kill her father and others, would use foul language and treat her son with great cruelty. Shortly before I saw her she had been held a week in the police station, where, because of family position, she was given considerable liberty. Here she was gay and content, interested in the other inmates, carrying on a flirtation with one of them—a Chinaman. The family was at last willing to admit that there might be "something the matter with her." She was sent to the psychopathic side of the hospital, where she was kept for three months under the best possible conditions. At the end of this time the family, still hoping that she might make good, took her out. She soon went to a neighboring town, where her riotous conduct resulted in much newspaper publicity and in her final commitment to the hospital. She talks now and then of being done with the old life, of having turned over

a new leaf; but the superficiality of such assertions is shown by the fact that the next moment she will gleefully relate some disreputable orgy in which she has had a part.

As to prognosis in moral insanity, it may be said that the only solution lies in a controlled environment. It must be kept in mind that the condition is due to inherent moral defectiveness and is incurable. The matter then becomes a question of such disposition of the patient as shall enable him to carry on his life at his maximum of happiness and usefulness. The solution of this question lies in controlling the environment. In cases in which the family can be made to see that the patient will always be unable to meet the demands and complexities of the life about him, that his liberties must be restricted; and when they have the means to command a simple and healthful environment for him away from the seductions and glitter of the city, it is then possible to place the patient in conditions that will enable him to maintain a fairly happy and somewhat useful life. It is not a difficult matter to maintain an appropriate environment for these persons if those in control understand their mental make-up; for these subjects readily adapt themselves to established conditions. Patient 1 is now living quietly on a farm, at some distance from the city, where he is under the constant supervision of a wise member of his family. He is happy, interested and entertained by the simple things about him. Here he shows no particular longing for a different kind of life; but in the several times when he has returned to his former environment he has immediately fallen a victim to the old lures. When it is not possible to command such fortunate conditions, the solution lies in the farm or custodial colony, where the unmoral individual, given proper occupation, will follow a happy and even useful life. When neither of these conditions is available, the insane asylum is the poor alternative. Patient 2 has been in a hospital for the insane for six months. With the exception of two or three episodes of minor insubordination, to which she was incited by discontented inmates (the constitutional unmoral is extremely suggestible), she has settled happily into the daily routine.

In differential diagnosis it must not be overlooked that mental aberrations other than moral insanity may present manifestations similar to those enumerated. I wish to call attention to such as are more commonly encountered.

In early dementia praecox the symptoms may at times closely resemble those of moral insanity. In the praecox cases, however, the onset dates more definitely from the age of puberty; but here too, there is often a long train of apparently immoral acts. The motives or mechanisms governing the anomalous conduct in the two conditions, however, are entirely different. In the dementia praecox there is mental conflict (an inability to choose between what seems to him good or bad, whether or not to act) which produces a paralysis of will that brings about the commonly seen cynicism, stolidity and stubbornness which, in reality, is the result of such rapidly changing motives as to render normal conduct impossible. In the mind of the unmoral, on the other hand, there is no real conflict. For his conduct there is but one motive—his desire for self-gratification.

Imbecility may present a syndrome similar to that of constitutional unmorality. But the defectiveness of the imbecile shows itself primarily and predominantly on the side of his intelligence. It may be detected by the Binet and other tests for mentality. The imbecile shows characteristically, muscular and other bodily stigmata of degeneration.

In those atypical cases of epilepsy in which the outbreak manifests itself chiefly in the mental realm (the "psychic equivalent"), the abnormal conduct may be confused with that of the morally insane. In the case of the epileptic, however, the fact can be elicited that the strange or criminal acts have been performed automatically during a state of amnesia, or split-off consciousness. The epileptic is likely to be of an irritable, morose disposition.

A morbid mental condition may accompany certain ductless gland anomalies, among which perverted thyroidism is conspicuous. Such conditions are characterized by irritability, restlessness and marked suggestibility. The conduct determined by such states is at times erroneously taken for that resulting from moral insanity.

We must not, finally, put the label of moral insanity on the inherently normal individual whose upbringing in an environment of poverty and vice has directed his conduct into the same channels as those spontaneously followed by the constitutional unmoral.

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LODGMENT OF A COCKLE-BURR IN THE VESTIBULE OF THE LARYNX

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Dec. 10, 1911, J. S., aged 10, while playing, entered into competition in tossing up and catching cockle-burrs in the mouth. He proved to be very adept, but one large prickly burr pricked his tongue, which caused a quick inhalation, thus drawing the burr into his larynx. He immediately experienced suffocation, aphonia and some pain. His family physician was called, and found the burr beyond the reach of ordinary measures.

When I saw the boy, about eight hours after the accident, the suffocation had somewhat increased. The patient was slightly cyanotic, his pulse weak, and it was scarcely possible for him to make a sound. The pain at this time was slight. He showed all signs of collapse. I tried to make an indirect laryngoscopic examination, but it was impossible, so we made preparations to do a tracheoscopic examination, preparation also having been made for removal after tracheotomy, which seemed almost unavoidable at this time. The patient was given ether anesthesia, and was placed in the recumbent position, with the head held in partial suspension over the end of the table. Suspecting that the burr was lodged in the upper larynx, I used the autoscopic spatula with the Brunings-Kahlar pan electroscope. I found the burr lodged crosswise in the ventricle of the larynx. It was difficult to establish the landmarks, as there was considerable swelling of the false cords, the burr being covered with blood and mucus and filling almost the entire ventricle. The spines and tentacles were partially imbedded in the mucous membrane, because of the spasm of the muscles and swelling. The only aeration afforded was the air that could pass around the burr through the spines, and that was very limited. Finding it in this position and condition, and fearing that trauma might be caused by the removal of it in that position, I endeavored to turn it so that the long axis of the burr would be in the long axis of the larynx. After this, to grasp it with forceps and remove it was a simple matter. The greatest disadvantage under which I was working was the great amount of secretion which is always present when profound anesthesia is used in bronchoscopy; but using the Brunings-Kahlar pan electroscope overcame this, because the light is reflected light and the secretion has no effect on it.

After the burr had been removed and the narcosis had passed off, the patient was placed in the Fowler position and

cold compresses applied to the throat. He experienced no discomfort in respiration, and no further trouble. The compresses were taken off on the third day and the patient took semisolid food without difficulty or pain, and on the third day when he was allowed to try to use his vocal cords he could speak in a moderately audible voice. He was allowed to go home on the fourth day; his voice returned gradually and was about normal on the fourteenth day. The family physician reported later that the patient made an uneventful recovery.

APPARATUS FOR PRODUCING ARTIFICIAL PNEUMOTHORAX

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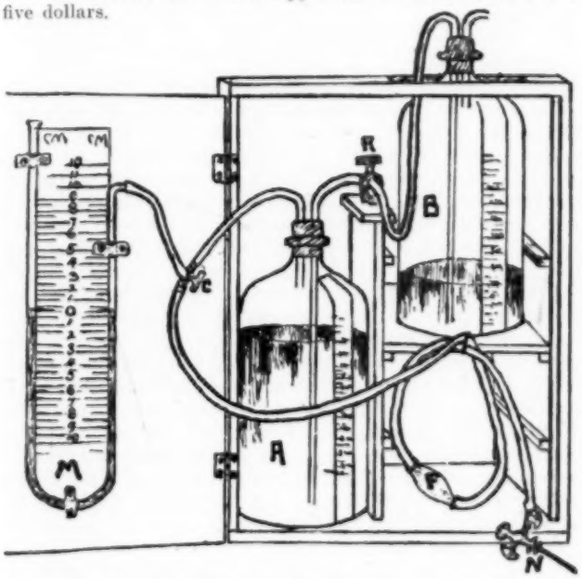
KAMLOOPS, B. C.

Artificial pneumothorax has been so universally accepted as a therapeutic measure in certain selected cases of pulmonary tuberculosis that the following description of a simple modification of the Floyd-Robinson apparatus as used by us may be useful. It has the great advantage that it can be made by any practitioner who has facilities for bending glass: without the needles the whole apparatus should not cost over five dollars.



Apparatus for producing artificial pneumothorax: *A* and *B*, two 80-ounce bottles; *R*, ordinary stop-cock; *C*, three-way stop-cock; *M*, manometer; *F*, filter; *N*, needle.

It consists of two 80-ounce bottles *A* and *B*, with pierced rubber corks. These bottles are graduated into spaces of 50 c.c. on a strip of adhesive pasted on them. The graduation must be done by measuring 50 c.c. in a graduate for each space. The bottles are connected by a syphon consisting of a glass tube going to within an inch of the bottom of each bottle and connected by rubber tubing. A stop-cock, *R*, is inserted into the rubber tubing between the bottles.

Bottle *A*, which is charged with nitrogen gas, in a manner to be described, is connected by rubber tubing with the needle, *N*, which is inserted into the chest. The water manometer, *M*, which is most important, is connected with the needle by a three-way stop-cock at *C*. This three-way stop-cock by a half turn can be connected either with the manometer or with the nitrogen bottle, *A*. The manometer is graduated in centimeters and fastened to the door of the apparatus by brass-clips. At *F* is a glass filter made by drawing out an ordinary test-tube so that rubber tubing can be slipped over the ends. It is filled with sterile cotton and serves to filter out any foreign particles or droplets that might be carried into the rubber tubing by the gas. The needle used is the Floyd-Robinson type as described by them (Robinson, Samuel, and Floyd, Cleveland: Artificial Pneumothorax as a Treatment of Pulmonary Tuberculosis, *Arch. Int. Med.*, April, 1912, p. 452).

To charge Bottle *A* with nitrogen a cylinder of compressed gas may be used, or it may be charged more cheaply and quite as satisfactorily by abstracting the oxygen from the air by a solution of pyrogallol and potassium hydroxid.

The formula which we have used is as follows: Six gm. of pyrogallol powder are placed in the graduated bottle, *A*, which is then filled to the 450 c.c. mark with warm water and to the 500 c.c. mark with 15 per cent. potassium hydroxid solution. The bottle is corked tightly, shaken and set aside for three hours, at the end of which time practically all the oxygen will be abstracted from air within the bottle. The quantity absorbed can be measured by the amount of fluid that syphons over from Bottle *B*.

To operate the apparatus Bottle *B* is filled with water or pyrogallol solution. To force nitrogen through the needle the stop-cock between the bottles and also the three-way cock at *C* are opened. Fluid from *B* as it gradually syphons into *A* will force nitrogen gas through the tubing to needle. As the fluid falls in *B* the pressure can be maintained by raising the bottle on the movable shelf. The amount displaced can be read easily on either scale, and the flow of gas can be stopped by turning either stop-cock.

When the needle is inserted in the chest the stop-cock, *C*, is turned so as to connect the needle with the water manometer. During the operation the fluctuation and pressure in the manometer can be observed by simply turning the three-way cock, *C*. This closes off the gas and connects the needle with the manometer instantly. This we consider a simple but important improvement on any other apparatus which we have seen described.

The technic of the operation has been so carefully described by numerous writers that it is not necessary to detail it here. (An extended bibliography was given in THE JOURNAL, Dec. 27, 1913, p. 2313.) The point which all emphasize is the importance of getting negative fluctuations in the manometer before starting to inject any gas, and observing the effect of the injection of gas on the fluctuations in the manometer. By turning the three-way stop-cock *C* this can be seen instantly at any stage of the operation. If it is considered necessary to warm the gas before injection, a copper coil can be inserted into the rubber tubing and placed in a basin of warm water.

We have given over forty injections with this apparatus and find that it works admirably.

The box can be made by any carpenter. The following articles are necessary:

Two 80-ounce bottles with perforated rubber corks.
One yard of stethoscope rubber tubing.
Adhesive.
One 30-c.c. test-tube to make filter.
One hard rubber stop-cock from ordinary fountain syringe.
One three-way stop-cock; this costs less than one dollar at any instrument dealer's.
One length of ⅜-inch glass tubing.
One length ½-inch glass tubing.
One Floyd-Robinson needle.

WALL OF THE STOMACH PERFORATED BY A PENCIL

Y. A. LITTLE, MILLEDGEVILLE, GA.
Assistant Physician, Georgia State Sanitarium

Patient.—Mrs. F. A. was admitted to the Georgia State Sanitarium Jan. 18, 1900, with diagnosis of dementia praecox. No suicidal attempts were noted, but one of the older nurses informed me that some years ago, patient swallowed a thimble, which was recovered in the feces following a purge with castor oil.

Present Illness.—Patient was first seen at 11 a. m., Nov. 18, 1913. Temperature 101⅖ F.; pulse 95. She complained of intense abdominal pain and only reported her condition to the nurse when the pain became so severe that she could no longer stand it. The pain was so exquisite and the abdomen so rigid that nothing could be ascertained from palpation. She was immediately transferred to the surgical ward. A blood-count revealed the presence of 25,000 leukocytes.

Operation.—At 4:30 p. m. an incision was made 4 inches long in the median line between the symphysis and the umbilicus. Nothing was found in the pelvis or lower abdomen to account for the trouble, and the hand was introduced into the incision to explore the region of the gall-bladder and stomach. A foreign object was discovered within the stomach, which proved to be a pencil, the pointed end of which had perforated the anterior wall of the stomach near the cardiac orifice. At the point of perforation, the stomach was adherent to the anterior abdominal wall. On manipulation the adhesions gave way and with the fingers holding the stomach tightly around the perforation, the pointed end of the pencil was brought into the incision. The pencil was immediately withdrawn, the stomach held in the abdominal wound by means of sponge forceps and the hole in the stomach carefully walled off with dry sponges, very little, if any, leakage occurring. The perforation was closed with linen (Czerny's) sutures, reinforced with two layers of Lembert sutures. The mass of adhesions, which was semigangrenous, was wiped off thoroughly with dry sponges and cauterized with phenol (carbolic acid) followed with alcohol. Two cigarette drains were left extending to the point of perforation and the abdomen was closed in layers.

Postoperative Treatment and History.—The patient was kept in Fowler's position and proctoclysis kept up for twelve hours; nothing was given by mouth except a little water. November 21, a gastric fistula was seen to have been established and the drainage-tubes were removed. The fistula discharged freely and closed spontaneously about the tenth day after it was discovered. The patient's recovery was uneventful, except that the lower superficial area of the wound became slightly infected and closed by granulation.

The interesting factors in this case are the acute abdominal pain while the pencil was perforating the stomach, the fact that the pencil had remained in the stomach for a considerable period of time without giving rise to symptoms, and the importance of thoroughly exploring the stomach and intestines when an abdominal operation is performed on insane patients.

The pencil was 6½ inches long, the graphite had been entirely dissolved by the stomach juices, and the two halves separated easily while the pencil was being examined.

The patient at first positively refused to tell when she swallowed the pencil, but some weeks after the operation, she told one of the nurses that it occurred several years ago. Little credence, however, can be placed in her statement, as she is markedly deteriorated.

A CASE OF MICROCOCCUS TETRAGENUS SEPTICEMIA *

ALBERT E. STEELE, M.D., BOSTON

Assistant in Clinical Bacteriology, Massachusetts General Hospital; Instructor in Bacteriology, Harvard Graduate Medical School

History.—Joseph G., aged 24, teamster, born in Italy, was admitted to the East Surgical Service of the Massachusetts General Hospital, in charge of Dr. F. G. Balch, Aug. 20, 1913.

The history was difficult to obtain, but it was learned from friends that the present illness came on nine weeks before entrance. Ten days previously the patient had pain in the right shoulder and left hip. About this time, a swelling was noticed in the upper outer aspect of the left leg. At present he has abdominal, chest and joint pains.

Physical Examination.—This shows a well-developed but poorly nourished, very sick Italian. He has lost much subcutaneous fat; the skin is hot, dry and flabby, the mucous membranes pale. There is no mastoid nor lateral sinus tenderness; no stiffness of the neck; no nasal or aural discharge. Pupils are equal and react normally. There are several small palpable axillary glands.

The heart apex is visible in the fifth interspace, 1 cm. inside the nipple line. There is cardiac dulness 12 cm. to left of the midsternum, 2 cm. outside the nipple line. The heart-sounds are rapid, regular and of fair quality. A soft systolic murmur is heard at the apex of the heart. The pulmonic second sound is louder than the aortic.

There is dulness at the right base of the lung, diminished bronchial breathing and many fine most râles. Otherwise the lungs show nothing abnormal.

The abdomen is distended; it is tympanitic except in the flanks, where there is shifting dulness. The liver dulness extends from the sixth rib to the costal margin. The spleen and kidneys are not felt.

Over the left great trochanter and extending up to the left flank is a large tense fluctuating area. The left leg is generally swollen. There is marked tenderness over the left upper thigh. Over the right midtibial region is a fluctuating tumor, the size of a hen's egg. The right shoulder is slightly swollen and tender, and motion is painful.

The white blood-count is 33,000.

Treatment and Course.—The abscess over the right tibia was opened shortly after entrance by Dr. G. A. Leland, Jr., and considerable pus evacuated. The right shoulder showed marked swelling, but an incision revealed no pus. A small amount of clear fluid was removed from the right chest.

Cultures from the right tibial abscess showed a growth of the *Micrococcus tetragenus.* August 21 an abscess over the left tibial crest was opened and several drams of pus evacuated. Cultures of this abscess also grew the *Micrococcus tetragenus.*

The general condition of the patient did not improve in spite of the drainage of these abscesses, and a septicemic condition was suspected. On September 15, a blood-culture was taken and showed a pure culture of the *Micrococcus tetragenus.* A second blood-culture was taken September 19 to confirm the previous result. This culture also showed the *Micrococcus tetragenus* in pure culture. The patient's condition continued to become worse and he died Sept. 24, 1913, apparently of sepsis and exhaustion.

Unfortunately, necropsy in the case was not permitted, and no further knowledge of the pathologic lesions can be given. Guinea-pig inoculation was, however, used to confirm the pathogenic power of the organism. Ten days after subcutaneous inoculation with growth from the second blood-culture, the guinea-pig showed an abscess of the abdominal wall; a smear from this abscess showed the typical tetrads, both inside and outside the leukocytes. The guinea-pig died fourteen days after inoculation. Culture from the heart-blood of this pig showed a typical *Micrococcus tetragenus* growth. The organism was also demonstrated in microscopic section of the spleen and glomeruli of the kidney.

Thus, there has been demonstrated a pure culture of the *Micrococcus tetragenus* from abscesses and the blood of a patient; the organism has been grown in pure culture; this culture produced lesions in an animal; the organism was recovered from an abscess and the blood of this animal. Typical tetrads have also been seen in cut section of the spleen and kidney of this animal.

The biologic characteristics of the organism isolated were as follows:

Morphology.—Micrococci, growing in tetrads. Stains by Gram's method.

Growth.—Blood-Serum: Moist, glistening, grayish-white elevated colonies.

Agar-Agar: Moist, glistening, grayish-white translucent colonies.

Gelatin: Grows as small irregularly shaped, grayish-white colonies, along the line of puncture, with a circular growth on the surface. Does not liquefy.

Potato: Gray, elevated, moist, irregular shaped colonies.

Litmus-Milk: No change in color.

Bouillon: Clouded. Well-marked slimy growth.

Sugar Reactions.—No acid or gas production in glucose, lactose, saccharose, levulose, mannite or inulin.

The chief interest in this case exists because of the rarity of the condition; the present paper merely adds another case to the list.

* From the Pathological Laboratory of the Massachusetts General Hospital, Dr. J. H. Wright, director.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

CEROLIN.—Cerolin consists of the glycerides of fatty acids along with cholesterins, lecithin and ethereal oil, all of which are found in yeast.

Actions and Uses.—Recent investigations indicate that the laxative action of yeast depends not on the ferments, but on the fatty and lipoid constituents. In skin affections these substances are said to have the same action as yeast itself. Cerolin is said to be useful in furunculosis, acne, sycosis and similar affections of the skin. It is also said to be useful in habitual constipation, leukorrhea, erosions of the vagina and cervix and similar diseases.

Dosage.—From 0.1 to 0.3 Gm. (1½ to 5 grains) three times a day; children 0.025 to 0.1 Gm. (⅖ to 1½ grains) three times a day.

Manufactured by C. F. Boehringer and Soehne, Waldhof near Mannheim, Germany (Merck and Co., New York). U. S. patent applied for.

Cerolin Pills 1½ grs.—Each pill contains cerolin 1½ grains.

Cerolin is a neutral, honey-like semifluid mass of a yellowish to brownish color and a not unpleasant odor of yeast.

It is prepared by extracting fresh purified beer-yeast with alcohol and separating the dissolved fat from the alcoholic extract by suitable means.

If a weighed amount of Cerolin be dried on sand at 102 C. for an hour it should lose not more than 10 per cent. of its weight (moisture).

If cerolin be mixed with sodium carbonate and potassium nitrate and incinerated, the ash dissolved in water, acidified with hydrochloric acid, and the solution saturated with hydrogen sulphide, no precipitate or turbidity should occur (absence of heavy metals).

TETANUS ANTITOXIN (See N. N. R., 1914, p. 243).
E. R. Squibb and Sons, New York.

Refined and Concentrated Tetanus Antitoxin.—Marketed in two packages containing, respectively, 1,500 units (immunizing dose) and 3,000 units (curative dose) put up in syringe containers.

Therapeutics

THE TUBERCULOSIS PROBLEM

(Continued from page 851)

HOW IS THE GERM ACQUIRED?

The discovery of the tubercle bacillus by Robert Koch, in 1882, and the proof that this bacillus was the cause of tuberculosis, changed the established belief that tuberculosis was hereditary to the belief that it must always be acquired. This is of course a most constant fact, but the part that heredity plays in the development of tuberculosis, in furnishing proper ground in which the bacillus may grow, or in offering a condition of low-grade immunity against this disease, is progressively becoming more prominent. A human fetus can be born with tuberculosis, but comparatively few such cases have been recorded. If one were roughly to estimate the number of such authentic instances it might not be far from one hundred, and in most of these the mother was the tuberculous parent.

Tubercle bacilli have rarely been found in the milk of an infected mother. Therefore, direct infection from this source is improbable. It is possible, however, that toxins from the tubercle bacillus or from a secondary infection of the mother may be eliminated in the milk and cause, in the child, gastro-intestinal disturbance, fever and emaciation. It is improbable that the milk could furnish any substance that would render the child immune to tuberculosis. The therapeutic conclusion is positive that a tuberculous mother should not nurse her child, not only for the child's sake, but also for her own, as the mother rapidly grows worse through the nutritional loss caused in producing the milk.

That the tendency to develop this disease is inherited seems well established, especially by the carefully estimated insurance statistics. In persons applying for insurance the liability of a person with a family history of tuberculosis to contract the disease is estimated at 30 per cent., and this liability relatively increases with the number of members of the family who have had the disease. There is always a probability that most adults who develop tuberculosis have, as infants and young children, acquired the disease from a tuberculous parent, and have been harboring the germ in some gland or organ of the body.

As one attack of this disease does not cause immunity against subsequent active disturbances from it (in fact, patients having once suffered from the disease apparently are ordinarily more susceptible to it), parents having tuberculosis do not transmit to their children an immunity, but rather a susceptibility, or an allergy to the disease, as it may be termed.

It would be too far wide of the mark to discuss heredity and hereditary tendencies in this article, or transmitted susceptibility or transmitted immunity (some families seem more or less immune to this disease), but these are all recognized facts.

Statistics show that the person who is underweight and has a family history of tuberculosis is more likely to develop the disease than one who is underweight without a family history of tuberculosis. On the other hand, a person of full weight or overweight, whatever the family history, while not precluded from the possibility of developing tuberculosis, is much less likely to have it than one who is underweight. Also, one who is underweight is more likely to develop tuberculosis than a person of normal weight. Whether or not, the majority of underweight persons harbor tuberculosis germs and such a condition predisposes to underweight has not been demonstrated, but it is quite possible.

As is apparently true of most germ diseases, a race that has but recently acquired the disease is more susceptible to its inroads, and has the disease more actively than a race that has long suffered from it. Also, a change from outdoor life and a dry, clean air environment to indoor or to city life, or to a region where the air is damp or dust laden, predisposes to the development of tuberculosis.

The tubercle bacillus is readily killed by many chemical agents, is destroyed after a few minutes of a boiling heat, and seemingly after a few days of exposure to sunlight. Yet it may retain its vitality and activity when in a dry condition for months, and even when subjected to ordinary weather exposures. It has also been found alive after long burial in the earth.

This germ has been shown to be active when in excessively weak solutions (tuberculous sputum diluted 400,000 times and injected into guinea-pigs will produce the disease); hence there is no good tubercle bacillus except a dead one, and the care taken of any excreta containing

them cannot be too great. Not only does the sputum of tuberculous patients generally contain tubercle bacilli, but the droplets sprayed by coughing or sneezing frequently contain the germ. A careless patient with pulmonary tuberculosis may not only use infected handkerchiefs, but may spray his clothing and his hands with tubercle-bacilli-infected sputum, and thus reinfect himself, so losing the advantage of the disintegration of the tubercles and the evacuation and ultimate expectoration of the bacilli there contained. A tubercle bacillus when expectorated should never be allowed to reinfect the patient. If such care is exercised, his chances of recovery are increased.

The urine and feces of a tuberculous patient, wherever the focus of tuberculosis may be, are likely to contain tubercle bacilli. In some investigations the urine has been found to contain tubercle bacilli in 50 per cent. of chronic pulmonary tuberculosis cases, and it has been shown by many necropsies that the tubercle bacillus may be found in the urine without any tuberculous lesion of the genito-urinary tract. Some investigations have also shown that tubercle bacilli are almost constantly present in the feces of chronic pulmonary tuberculosis patients.

Fermentation, however, will generally soon kill these bacilli when they leave the body in the urine or feces.

These bacilli almost invariably gain entrance to the system by one of two ways: by inhalation, or by swallowing. A germ that is so constantly present in almost every community of civilized peoples must be breathed and swallowed by most persons. Something in the individual must tend to kill these germs before they acquire a home, that is, before they congregate in sufficient numbers to perpetuate themselves. Nothing probably tends more to prevent the acquirement of this disease than general good health, which especially means health of the upper air-passages and throat, the absence of bronchial catarrh, healthy tonsils, a normal digestion and healthy intestines. The tubercle bacillus probably cannot find a living chance unless there is some disease, injury or chronic disturbance in one of the parts of the body mentioned, and unless a sufficiently large number of them are inhaled or swallowed at once, so as almost to overwhelm the person's ability to destroy the germs. Of course, it is possible and perhaps probable that, although this disease gives no immunity, a patient in whom the disease has been arrested or in whom the disease once active is now chronic or more or less latent, may produce, or have already circulating in the body-fluids, enzymes that may destroy the tubercle bacillus more readily than is possible in one who has never had the disease. This supposition has been somewhat confirmed lately by discovery of the fact that tubercle bacilli injected into the peritoneal cavity of tuberculous guinea-pigs were more rapidly destroyed than they were when injected into the peritoneal cavity of the normal guinea-pig.[1]

Tubercle bacilli have been shown to contain three nucleoproteins which are probably toxic and are at least part of the cause of the systemic poisoning, as shown by fever, sweating and loss of appetite and strength. Besides these substances the tubercle bacillus contains a wax-like fat and a substance like glycogen. It has been shown that the toxic substances of the tubercle bacillus may not be destroyed by pepsin, but may be destroyed by trypsin.

Perhaps many conditions that we have termed causes predisposing to tuberculosis may really stimulate to activity latent tuberculosis or a tuberculous focus harbored and concealed somewhere in the patient's body. Whichever of these two suppositions may be correct, we recognize that a patient is likely to acquire, or having acquired, at least may develop an active tuberculous process when he is anemic; when he is under weight; when he is continuously overfatigued; when he has a tendency to recurrent colds, especially to recurrent bronchitis; when he does not quickly recuperate from any simple acute infection, whether it be grip, measles or whooping-cough, etc., or when he has suffered from a more serious acute infection, such as some prolonged septic process or typhoid fever, and especially when he does not recover quickly from a pneumonia or a pleurisy with effusion. Pleuritic effusions are considered as perhaps generally tuberculous in origin. None of the surrounding predisposing causes, such as unsatisfactory housing and occupations that are dangerously dusty, need to be considered here.

A child is considered predisposed to the development of tuberculosis, or perhaps already has a latent tuberculosis, if he is pale, has a tendency to eczemas, or has enlarged tonsils or postnasal adenoids, and especially if he has enlarged cervical glands. Caries of the teeth is also perhaps a predisposing cause, as decayed teeth may harbor all kinds of germs. Therefore to allow caries of a child's first teeth to persist, because they will soon be lost with the eruption of the second teeth, constitutes serious neglect. An enlarged cervical gland probably always shows that an infection entering through the tonsil has invaded the next fortresses of protection, namely, the cervical glands. If the infection is tuberculous, the gland may be actively tuberculous, and evident tuberculous adenitis is the condition. Much more frequent and not evident, but often found by good roentgenograms of the chests of children, is the involvement of the bronchial glands by the tuberculous germ having perhaps first gained entrance through the tonsils, and this without any involvement of the cervical glands. In fact, it has been repeatedly demonstrated that perhaps the majority of children affected with tuberculosis have the initial lesion in the tracheobronchial and hilus glands.

That bovine tuberculosis is frequently transmitted to children through milk by way of the intestine has for some years been thoroughly established, and it has been shown that many instances of glandular tuberculosis are due to this type of bacillus. General tuberculosis rarely, but udder tuberculosis almost always, infects milk with tubercle bacilli. The frequency with which bovine-tuberculosis-infected milk causes tuberculosis in children is still more or less a subject of dispute. Many experiments have shown that the gastric juice does not necessarily, if ever, kill the tubercle bacillus.

Recent investigations by Medin[2] of 623 children who had died of tuberculosis showed that in 98 per cent. infection was primary in the lungs, and in only 2 per cent. were the intestines the primary seat of the lesion. Medin states that during the thirty years in which he has specialized in the diseases of children he has not seen a single case of tuberculosis which he could attribute to infection from milk. On the other hand, many of the tuberculous glands of children are said to be caused by the bovine tubercle bacillus, and there seems to be no question that a tuberculous cow is a menace both from the contamination of her milk and from the spread of infection throughout her pasture and her barn.[3]

1. Manwaring, Wilfred H., and Bronfenner, J.: Intraperitoneal Lysis of Tubercle Bacilli, Jour. Exper. Med., 1913, xviii, 601.

2. Medin: Arch. f. Kinderh., 1913, lx, lxi, 482.

3. See also Mitchell: Brit. Med. Jour., Jan. 17, 1914.

There is a difference of opinion as to whether or not bovine tubercle bacilli can be distinguished from human tubercle bacilli. It is even stated that there may be varieties between the two supposedly typical forms. Certain it is that the variety termed the bovine variety is rarely found in adults, but is more or less frequently found in children. It is generally agreed that an infection with the bovine bacillus in children may be the origin of pulmonary tuberculosis in later life.

The best method of handling the serious economic problem of the prevention of tuberculosis among cattle need only to be mentioned to show the difficulties involved. It is of little use to test cattle with tuberculin, to destroy those who show a positive reaction, and then to leave the infected barns and cow-sheds to infect healthy cattle. This is a most serious problem for the Eastern states, and to prevent bovine tuberculosis probably means that a large majority of all cow-barns and sheds should be destroyed by fire.

The problem of how a child becomes infected is made more difficult by the assertion of Calmette[4] that it is impossible to tell whether a pulmonary tuberculosis has been caused by the tubercle bacilli being inhaled, or by reaching the lungs through the lymphatics. He believes that the tubercle bacilli are readily absorbed from the intestine and are there taken into the lymph-channels, and later into the general circulation. Tubercle bacilli can pass through the normal intestinal wall, and have been demonstrated in the thoracic duct. From this source they may then reach the blood and glands (most frequently the bronchial), and may be harbored in these glands for years. Such infection most frequently occurs in young children, and in later childhood or early adult life some acute disease or some serious debility, or the disturbances caused by bad ventilation or dusty occupations, can cause these glands to break down and diffuse bacilli through the system.

There seems to be no question that animals may be infected by both human and bovine tubercle bacilli. Human tubercle bacilli, through experiment and by accident, have infected some of the lower animals, notably rabbits and guinea-pigs, and rarely cattle, hogs, goats, sheep and horses. Dogs, cats, chickens and turkeys have tuberculosis, but ducks and geese, although living in the same pens, may not have it. Animal tuberculosis, while similar to human tuberculosis, is not identical. Bovine tubercle bacilli are many times more virulent to inoculated animals than human tubercle bacilli, with possibly the exception of the guinea-pig. Chicken tuberculosis does not harm cows. Fortunately, tuberculous meat is entirely sterilized by thorough cooking.

METHODS OF DISCOVERY OF INCIPIENT AND LATENT TUBERCULOSIS

Parents and schoolteachers should discover whether a child is running down, or is ill; but with adults or young working girls or boys the observation is less constant and less critical; hence the examination of employees for tuberculosis recommended by the Chicago Tuberculosis Institute in 1912, if adopted by all cities, would work wonders in preventing the development and spread of this disease. The Chicago committee having this subject in charge urges the importance of a systematic examination of individual employees in factories, mercantile establishments and offices with the object of detecting cases of incipient tuberculosis. The detection of persons so diseased is of importance not only to the one afflicted, but also to the well who may be working near, and to the employer who loses to a degree the efficiency of his working staff through the incapacitation of the employee.

To accomplish the object desired, namely, the discovery of incipient or latent tuberculosis, the decision as to how far advanced the disease is, and the best treatment advisable for each case, means the cooperation of the employer, the superintendent and foreman, if there be such, a physician and a trained nurse. The Chicago committee's report did not propose to examine all employed persons, as the expense would be too great, but to examine those who were readily recognized by their employers or by their fellow-workmen as showing debility, as coughing, or as being actually ill. Specifically the committee urges the discovery of: (1) those persons in whom it is not difficult to recognize on careful examination that tuberculosis is present; (2) those who are known to have suffered from tuberculosis, but in whom the disease, through treatment, has become latent; (3) those who are subject to cough and expectoration and have been so for a long time; (4) those who are in poor physical condition, suffering either from malnutrition, anemia or weakness, and (5) those who are members of families in which there has been, or now is, a case of tuberculosis.

Many belonging to these classes may readily be discovered by the employer, the superintendent or a foreman; others can be discovered only by a visiting nurse. The persons thus discovered should all be presented to the physician for careful examination and decision as to just what is the best course to pursue to restore them to health. An open case of pulmonary tuberculosis, that is, one in which tubercle bacilli are found present in the sputum, obviously must have immediate and continuous treatment, at home if the hygienic surroundings are suitable or hospital if the home surroundings are not suitable. The expense of sending a large number of patients to hospitals or sanatoriums is, of course, great; therefore many patients must be treated at home; but the surroundings of the home, the size of the family, the crowded condition of the tenement, and especially the presence of young children or babies in the home, must determine whether it is at all justifiable to allow the patient to remain there.

When it is decided that an employee is in a pretuberculous stage, and no bacilli are found in the sputum (if, indeed, there is any sputum), or the case is an arrested one, in which there was previously an active tuberculosis and now the patient again shows some debility, he may quite generally remain at home. Rest, fresh air and medical and visiting-nurse supervision will generally restore him to working health. Of course, a short stay in a sanatorium would be still better, but the limitations of tuberculosis sanatoriums would preclude the reception of many such patients.

In the case of employees who come from families who have suffered from tuberculosis, or employees who have become anemic and debilitated or are suffering from latent tuberculosis, it is hard to overestimate the value of personal instruction in hygiene, which means besides rest, fresh air, plenty of sleep and good food, the cessation of smoking, alcohol and all kinds of dissipation.

Investigations of this sort will also result in the discovery of far-advanced and hopeless cases of pulmonary tuberculosis; proper care will be given to these persons and their families, and the prevention of infection of others, especially of children, will become of inestimable value.

(To be continued)

4. Calmette: Rev. Internat. de la Tuberc., 1913, No. 5, p. 321.

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SATURDAY, MARCH 21, 1914

THE INDUCTION OF GASTRIC SECRETION

In the varied forms of food products of unlike origin and composition, prepared for the palate by diversity of technical and culinary processes, the diet of man furnishes to the body not only nutrients in the fundamental sense, but also numerous accessories. We consume both foodstuffs and substances which by stimulating the digestive glands help to provide a supply of the alimentary secretions so essential to proper digestive functioning. The idea that substances exist which induce gastric secretion is not so new as many have been taught to believe. The doctrine was enunciated long before the days of Pawlow's discoveries; under the name of "peptogens," Schiff recognized products like dextrin, peptone, alcohol, etc., which were known in some cases to excite secretion powerfully. But Pawlow carried the physiologic analysis of the secretory processes much farther than his predecessors did; and his classic contributions have served to emphasize the preeminent effect of a group of products. He demonstrated that gastric secretion as the result of food intake is not due merely to mechanical stimulation. Nor is it provoked by all sorts of foods; for instance, white of egg or starch causes no secretion. Pure proteoses or peptones—products of digestion—do not excite it. Meat, however, is a potent stimulus; and its secretory efficiency resides in some chemical substance which can be removed in the decoction of meat, in the guise of bouillon, or extract of meat, or related products.

Do all of the "peptogenic" substances, then, act alike? We now know that they do not. Some of the preparations which, when introduced into the stomach, excite a flow of gastric juice fail to have such an effect if they are brought to the gastric glands through direct injection into the blood-stream. Accordingly we have learned to distinguish a variety of ways in which secretion can be prompted. First, there are the psychic or sensory stimuli; these produce an effect usually as transitory as it is prompt. Then come the substances which need only to be absorbed in order to excite secretion, and which may occur preformed in foods or be liberated in digestion; like a drug, they act whenever they reach the seat of secretion. Last, come those substances which do not act of themselves, but serve rather to produce in the alimentary mucosa some product—a secretin or hormone, as it has been termed—which is absorbed into the blood-stream and carried to the glands where it excites their specific secretory activity. Water illustrates this. Administered subcutaneously it is without effect on gastric secretion; yet when water is introduced directly into the stomach secretion is stimulated.

The food may thus contain either preformed secretins or other compounds which in turn provoke the organism to produce secretins. These facts in themselves are indicative of the diversity of the chemical agents which evoke secretion in the different glands connected with the alimentary tract. Some of them are not present in crude edibles, but arise in the course of their preparation for the table. Cooking and seasoning contribute a share toward the secretin output. The literature of alimentation now abounds in details regarding the comparative secretagogic virtue of numerous familiar food accessories, salts, spices, mineral waters and drugs; and we may confidently expect to find this chapter of physiology, including the complex problem of stomachic and carminative products, placed presently on a more scientific experimental basis.

Regarding the amino-acids, a group of compounds much discussed at present in relation to a variety of questions of medical import, a recent finding deserves incidental notice. Bickel[1] has observed that these substances, at least the mixtures of them obtained in protein hydrolysis, are undoubtedly provocative of gastric secretion when introduced by way of the mouth. Artificially hydrolyzed casein, serum-protein and meat all increase the flow of gastric juice. This outcome gains a practical significance in view of the fact, reported on the authority of Salkowski, that some of the plant extracts, now prepared on a commercial scale and widely sold in certain parts of the world in place of extract of meat, are comparatively rich in amino-acids. Their efficiency as secretin carriers can thus be explained. The waste of the decoctions of some of the commonly cooked vegetable foods has often been decried on the ground that desirable nutrient salts are in this way discarded. Perhaps Bickel's investigation will present in a somewhat different light the question of the losses in vegetables through cooking.

FURTHER LIGHT ON THE USE OF RATTLESNAKE-POISON IN THERAPY

We have already called attention to the use of rattlesnake venom in epilepsy and to the danger of employing so powerful an agent in the treatment of human beings.[2]

1. Bickel, A.: Ueber die Wirkung von Aminosäuren auf die Magensaftsekretion, Internat. Beitr. z. Path. u. Therap. d. Ernährungsstör., 1913, v, 75.

2. Rattlesnake Venom in Epilepsy, Queries and Minor Notes, THE JOURNAL A. M. A., March 15, 1913, p. 850. The Rattlesnake-Venom Treatment of Epilepsy, editorial, March 29, 1913, p. 1001. Rattlesnake Venom in Epilepsy, Queries and Minor Notes, April 19, 1913, p. 1246. The Rattlesnake-Venom Treatment of Epilepsy, Correspondence, June 7, 1913, p. 1811.

In a previous editorial we expressed the opinion that it would be wise "to leave the crotalin treatment of epilepsy in the hands of its adventurous author for administration to those unfortunate victims of epilepsy whose desperation has led them, knowingly, to assume a great risk, with a very small promise of benefit."

In a study of the subject, John F. Anderson[3] of the Hygienic Laboratory at Washington, reports a death from the crotalin treatment in consequence of infection contained in the specimen, and gives the results of the examination of a large number of samples of crotalin solution prepared by different manufacturers and bought in the open market. The report states that ninety-five ampules of crotalin solution prepared by four different firms were examined and that thirty-five of the number (38.8 per cent.) were found to be contaminated. In many instances this contamination was found to be with anaerobic organisms. In addition, a number of tablets of crotalin, prepared and sold for hypodermic use, were also examined, and every tablet was found to be contaminated.

In view of the statement made by one of the proposers of the crotalin treatment of epilepsy that solutions should be as near a standard and as uniform as possible, the results reported by Anderson as to the variation in the activity of crotalin solutions are of interest. It was found impracticable to determine the extent of variation in the samples of crotalin bought in the open market, but a considerable variation in the potency was found to exist in the product of the same and of different manufacturers. This is, of course, not unexpected, as Noguchi states that the loss in weight from drying of rattlesnake venom varies from 25 to 50 per cent. The point of special interest in the report is a discussion of the difficulty of determining the sterility of specimens of crotalin dispensed. It was found that the bactericidal power of the venom and the antiseptic power of the preservatives contained in the solution of crotalin interfered so much with the application of sterility tests that even when bacteria were known to be present in the solution it was not always possible, on account of the factors referred to above, to determine the presence of the bacteria. It would appear that the bactericidal power of the venom and the antiseptic power of the preservative contained in the crotalin have an important bearing on any sterility tests that may be made by the dispensers of crotalin solutions.

There can be no question about the dried venom always containing a large or small number of bacteria. This must necessarily follow when we consider the habits of the reptile from which the venom is secured and the methods of obtaining it from the snake and of drying and preserving it after it is obtained. The possibility of the presence of pathogenic bacteria difficult of detection, and the further fact that one of the effects of rattlesnake venom is to reduce or abolish the normal bactericidal power of the blood-serum, emphasize the great risk of serious harm from the subcutaneous injections of solutions of rattlesnake poison. To these two dangers should also be added that of the favorable conditions for the growth, in the area of injection, of anaerobic bacteria by reason of local necrosis of tissue from the specific action of the venom.

The subcutaneous injection of crotalin solutions has been recommended by its proposers not only for epilepsy, but also for other conditions of unknown or obscure etiology, such as lumbago, chorea and bronchitis, and even for those of known etiology, such as tuberculosis. While the physician who has the care of an epileptic is often willing to try almost any treatment that will offer a hope of ameliorating the condition of the unfortunate patient, it would certainly seem that he would be taking an unnecessary risk with the life of his patient if he should turn to the use of rattlesnake poison for the treatment of the condition. For its use in a number of other conditions in which it has been proposed, there also seems to be no justification.

3. Anderson, John F.: Danger in the Subcutaneous Injection of Solutions of Crotalin, with Report of a Fatal Case, this issue, p. 893.

DEATHS FOLLOWING INJECTION OF NEOSALVARSAN IN LOS ANGELES

On another page[1] we report the statements made by Dr. C. H. Whitman, superintendent, and Dr. A. T. Charlton, pathologist, at the Los Angeles County Hospital, in regard to the deplorable fatalities which occurred, March 7, in that institution. As we stated last week,[2] the method followed was not the method of Swift and Ellis.[3]

The intraspinal injection of neosalvarsan is, of course, not a new procedure. It has been done repeatedly in some patients. Ravaut,[4] for example, in a recent article reports nine cases of nervous syphilis in which an aggregate of sixty-three intraspinal injections at weekly intervals were given with benefit to the patients. More recently Marinesco and Minea[5] found that serum salvarsanized *in vitro* had a more rapid and powerful action than the serum salvarsanized in the living body. They state that much more arsenic in proportion can be used for the purpose in the test-tube than in the living body, while the dose of salvarsanized serum that can be safely injected into the subarachnoid space seems to be much larger than hitherto deemed possible. They use the patient's own serum after inactivating it, adding the dose of salvarsan or neosalvarsan and then keeping the

1. Deaths Following Injection of Neosalvarsan in Los Angeles, this issue, p. 957.
2. Deaths from Neosalvarsan in Los Angeles, THE JOURNAL A. M. A., March 14, 1914, p. 861.
3. Swift, H. F., and Ellis, A. W. M.: Study of Spirocheticidal Action of Serum of Patients Treated with Salvarsan, Jour. Exper. Med., October, 1913; abstr., THE JOURNAL A. M. A., Oct. 25, 1913, p. 1572.
4. Ravaut: Ann. de méd., 1914, i, 49.
5. Marinesco and Minea: Bull. de l'Acad. de méd., 1914, lxxviii, 259.

whole at body heat for three-quarters of an hour. This method of treatment was applied in twenty cases of syphilis affecting the central nervous system, including sixteen tabetics, a case of cervical meningomyelitis with atrophy of the Aran-Duchenne type; a case of tetraplegia, and two of agonizing headache, pain in the limbs and much leukocytosis, with intense Nonne and Wassermann positive in the cerebrospinal fluid. The injections were made at intervals of seven or eight days, and the dose of neosalvarsan thus injected ranged from 0.006 to 0.012 gm. The same method was applied to fifteen other patients, the salvarsanized serum being injected into the subarachnoid space over the frontal lobe. The results on the whole were disappointing, but the interval since has been only from four to seven weeks, so that the ultimate value of the method is not known.

The attempt in Los Angeles was, then, not an untried experiment; and in desperate cases of nervous syphilis was an attempt justified by the possibilities of benefit to the patients. From the reports we have received it would seem that the technic used in these fatal cases differed from the preceding in at least two respects; thus the neosalvarsan solution was heated to 54 C. (129.2 F.) for half an hour, and the solution, even though in hermetically sealed tubes, was kept for twenty-four hours before use. Neosalvarsan is a very unstable substance so that the question arises as to whether these procedures might not be fraught with danger. In the face of such a catastrophe it is to be deplored that six of the bodies should have been embalmed before there was an opportunity for necropsy.

We regret that we have not been able to secure more details regarding the individual cases, the time at which symptoms of poisoning showed themselves, the interval between the injection and death, etc. Our comments are, therefore, based on rather incomplete information.

SOME STATISTICS CONCERNING INTESTINAL PARASITES

The pathogenicity of some of the intestinal parasites has become the subject of more detailed study of late, owing, we believe, in part to the stimulus received from the current interest in all topics pertaining to tropical medicine, and in part to the newer discoveries respecting the biochemistry of these organisms.[1] There is no species of animal and no race or class of man known to be free from parasites. The frequency of their distribution depends as a rule on certain features of the environment and the hygienic standards of the people. In general, animal parasitism increases from temperate to tropical climates; and all intestinal parasites decrease proportionately with the increase of care exercised in a proper system of latrines and sewers. The incidence of intestinal parasites in the Philippine Islands has been the subject of investigation by numerous workers since the American occupation.[2] These studies, which have been made largely from the clinical point of view, using the microscopic examination of the feces as the standard of incidence, indicated that out of over 19,000 persons examined by this method, 85 per cent. were infected with one or more species of intestinal parasite. These valuable data have now been supplemented by the findings in 500 consecutive necropsies performed in the department of pathology and bacteriology at the College of Medicine and Surgery in Manila.[3] While the class of cases on which the report is based is more comprehensive as to age, sex and distribution than some of the series of cases previously investigated, the fact that a large percentage of the present cases comes from a hospital in which routine treatment for intestinal parasites is in vogue may diminish the number of parasites found post mortem and somewhat invalidate the percentage values which follow here. *Ascaris lumbricoides* occurred in 41.2 per cent., *Trichuris trichiura* in 34.4, hookworm in 16.6, *Taenia saginata* in 0.2, *Cysticercus cellulosae* in 0.2, *Oxyuris* in 1, *Clonorchis sinensis* in 0.4, *Schistosoma japonicum* in 0.2. Amebic colitis occurred in five persons.

It has been stated by some authors that ascaris, which is seen to be the most common form of zoöparasite encountered, leaves the human host in the course of febrile disease. The review of the Manila cases, including those of malaria, typhoid, plague, lobar pneumonia and bacillary dysentery in abundance, shows that the febrile cases, with an incidence of ascaris ranging from 26 to 66 per cent., did not have a lower percentage of infestation than non-febrile cases. Although by far the greater number of persons harboring these parasites present no derangements which can readily be attributed to the presence of ascaris, instances of possible toxic action are nevertheless recorded. Two clinical cases of appendicitis in which trichuris was found in the appendix have been encountered. One *Taenia saginata* (the beef tapeworm) was the only tapeworm encountered. In the Philippines, the infrequence of *Taenia solium* (the pork tapeworm) in man, has been deemed noteworthy as compared with the great frequence of cysticercus in hogs.

ATHLETIC SPORTS IN RELATION TO HEALTH

It is one of the numerous paradoxical facts encountered in every-day life that the problems of athletics rarely receive the attention of those who are most concerned with health, the supposed ultimate purpose of bodily exercise. The management of athletics is rarely found in the hands of a physician, by whose scientific guidance one might reasonably expect that the various

1. The Toxic Properties of Familiar Intestinal Parasites, editorial, THE JOURNAL A. M. A., May 4, 1912, p. 1377.

2. The results are recorded by various investigators in the volumes of the Philippine Jour. Sc., Sec. B., from 1908, III, to 1911, vi.

3. Crowell, B. C., and Hammack, R. W.: Intestinal Parasites Encountered in Five Hundred Autopsies, with Reports of Cases, Philippine Jour. Sc., B., Tropical Med., 1913, viii, 157.

sports would be enabled to effect the best of which they are capable and would be freed from the unconcealed dangers attending some of the present athletic practices. Athletics have for the most part to-day become the province of the people at large. It is the uneducated trainer rather than the physician, the hero-worshipper rather than the hygienist, who directs and inspires the performance of the physical exercises which ought to be undertaken primarily in the interests of a sound body and a sound mind. Games have developed into contests in which victory is sought at any human price. The "manager" is the foremost adviser, and the physician is called on as a last resource to mend the damage that may have been done in an ill-advised struggle for athletic supremacy. Such are the exhibitions that the populace wants. Until there is a wide-spread education of the people as to the proper underlying purpose of bodily exercise and the dangers that beset the indiscriminate and uncontrolled pursuit of athletics by every one whom the inclination stirs, it is a seemingly hopeless task to preach the gospel of reform.

Meanwhile the physician and the physiologist must content themselves with acquiring the data on the basis of which sound judgment in relation to the problems of exercise and sane advice in the pursuit of athletic sports may be obtained. Only the beginnings have been made in this field of study. If football or rowing or bicycling have their dangers, what are they? Wherein do the respective advantages of the various types of physical exercise lie and what are their unquestioned effects on the organism? What are the physiologic prerequisites for participation in each form of gymnastic performance? These and a host of similar questions demand ready answers in respect to which there should be common accord, precisely as there now is a growing appreciation of the physical standard of health demanded in the various industrial occupations. In the latter case the subject is investigated because it has become a matter of dollars and cents. When health and happiness are the sole end sought the same question has been neglected.

Among the internal organs the heart and kidneys have hitherto received most consideration in connection with the physiology of exercise. There is an idea abroad that each form of athletics has its own peculiar types of pathologic defects. Just as one hears of the "tobacco heart," there are the alleged "bicycle heart," "football kidney," etc. It has been the merit of Albu[1] in Berlin to point out that the pathogenesis of the abnormal conditions familiarly associated with the pursuit of athletics may be interpreted from a common point of view. In other words, all undue muscular exertion, whether carried out by one group of muscles or another, in one type of movement or a different one, affects certain groups of organs and metabolism in general in entirely comparable ways. The physiologic or pathologic result may vary in degree but not in kind. The effect of vigorous exercise in its more extreme manifestations exhibits two phases: first, there is a stimulation bringing about a rapid, vigorous circulation to the taxed muscles and the internal organs and disclosing itself by the rise of blood-pressure and augmented cardiac activity; this is followed sooner or later as the varying intensity of the exertion may determine by a depression phase. A fall in blood-pressure and functional heart-weakness ensues. It is the latter aspect of the results of undue exercise, with the derived consequences of cardiac insufficiency, that is most likely to engage the attention of the physician. In varying intensity the symptoms of stasis throughout the circulation now arise. Venous stasis in the kidneys occasions the characteristic nephritic changes which find expression in the altered composition of the urine. Every sort of pathologic sediment ranging from the slightest deviation from normal to the picture of severe nephritis may be seen. Frequently the extremely sudden onset of circulatory changes determines a degree of venous hyperemia quite comparable with the condition in acute hemorrhagic nephritis. In the "athletic kidney," however, the pathologic manifestations are always caused by functional disturbances rather than by morphologic alterations in kidney structure. In this respect, Albu is inclined to compare the kidney changes resulting from undue exercise with those occurring in orthostatic albuminuria, which is likewise presumably a purely functional phenomenon. He believes that extreme exertion of the musculature of the lower limbs is far more likely to induce renal stasis than the exercise of other groups of muscles. In confirmation of this it is said that even vigorous use of so-called chest-weights and other apparatus of similar design rarely, if ever, disposes to abnormal kidney manifestations in the way that running may.

It has been asserted that the kidney disorders at times discovered as the result of the active use of the lower limbs, in running-matches, for instance, are due to the mechanical jar or vibration peculiar to this form of exercise. Observations made on numerous persons who have undergone long journeys by railway, in which the opportunity for such alleged injury by vibration alone is not inconsiderable, have failed to disclose any damage to the kidneys.

Athletic exercises may be differentiated into feats of strength and feats of endurance. Albu maintains that these differ essentially only in the fact that in the one case (in tests of strength) the initial rise in blood-pressure is very soon transformed into one of depressed circulation; in the case of endurance tests this comes about more gradually. In feats of endurance the fall in blood-pressure reaches a much lower level than is found in the brief exhibition of great muscular exertion; and the physiologic consequences are determined accord-

1. Albu, A.: Beiträge zur pathologischen Physiologie des Sports, Ztschr. f. klin. Med., 1913, lxxviii, 151. Jundell and Fries: Nord. med. Ark., 1911. Jundell and Sjögren: Ibid., 1912.

ingly. There are no important differences between the different types of athletic sports in respect to their physiologic effects on the body. The severe symptoms, however, make their appearance more prominently in the exercises like football, wrestling, bicycle contests, etc., which may call for extreme exertion. Every forced muscular exertion leads to a precipitate rush of blood to the periphery and the internal organs. An enormous volume of blood may be driven into the arteries in a very brief period. When the cause of this circulatory response is removed, equilibrium speedily ensues. The heart is not overtaxed unduly long and the encountered weakness is transitory at most; but in contests of long endurance the final outcome is a prolonged and unrelieved fall in pressure with an increasing relaxation of the fatigued cardiac musculature.

To what degree the distinctly pathologic manifestations of improper athletics may arise depends on a variety of circumstances, some of which can readily be indicated. Age is a factor of significance. During the period of adolescence when the organs have not reached their full development the responses are pronounced, and the person is unusually sensitive to muscular excesses. "Constitution" expresses in a somewhat vague way another factor which determines the fitness of a person for athletics. There must be adequate development, suitable nutrition and a competent nervous system, the latter element often being undervalued. Obviously, appropriate training furnishes another safeguard against the dangers of athletic overdoing. Much of what is called "training" in this country is, however, a combination of unscientific and sometimes irrational dietetics with psychic quackery. Last but not least, the degree of exertion required is a feature of determining significance when the ill effects of athletic sports are to be avoided. The distinction between doing and overdoing needs to be learned and appreciated more than any other single factor in the rational pursuit of bodily exercise for health and enjoyment rather than for personal superiority and group supremacy.

Current Comment

ADRENAL GLYCOSURIA IN MAN

Since it is becoming more evident that the conspicuous vasomotor properties of extracts of the adrenals cannot be regarded as exemplifying a continuous influence exerted by these organs in the normal individual, attention is being directed to other functions exerted by them. The analogy between the action of epinephrin and that which occurs on stimulation of the sympathetic nervous system suggests possible non-circulatory effects of the adrenal secretion. Even more promising, however, for the interpretation of unsuspected activities of these ductless glands is the discovery by Blum, in 1901, that extracts of the adrenals may provoke a typical glycosuria. This fact has been abundantly verified on various species of animals, and the details of the mechanism involved have been subjected to experimental analysis. In a general way it appears that the injection of adrenal extracts, or the epinephrin isolated therefrom, leads to a "mobilizing" of glycogen — a rapid contribution of sugar to the blood with a consequent glycosuria. Just as after the discovery of the vasomotor properties of adrenal extracts the conclusion was promptly drawn that the glands regulate vasomotor tone by pouring out more or less of their active principle, epinephrin, into the circulation, so the glycosuria-producing effects of injected epinephrin have become the subject of hypothesis with regard to the metabolism of sugar in the body. The adrenals were looked on by the earlier enthusiasts in this field as constantly regulating the level of sugar in the blood, more or less epinephrin being "secreted" into the circulation to produce a prompt conversion of stored glycogen to meet the changing needs of the organism. We have already pointed out[1] how cautious one must be at present in ascribing too general functions to the adrenal bodies. It is probably as premature to assume that *normally* they exert a continuous regulatory influence on the carbohydrate metabolism of the organism as it was to assert that they are continually supplying epinephrin to the circulation in order to maintain the *normal* vasomotor tone. This need not minimize the possible efficacy of the glands on other than ordinary physiologic occasions. It is now to be determined under precisely what circumstances and emergencies the adrenals are called on to contribute their potent product. Inasmuch as it can no longer be questioned that, under some circumstances at any rate, the carbohydrate-mobilizing capacities of adrenals come into play in the animal organism, it is of added importance to substantiate such possibilities in man as well. This is always a step in the perfection of scientific discoveries in the domain of animal physiology. Landau[2] has furnished the desired proof. He notes that when 156 gm. (5 ounces) of glucose are fed to man the sugar-content of the blood is raised, but ordinarily not to the point that calls forth glycosuria. If, however, a subcutaneous injection of epinephrin is made when the glucose is given, pronounced hyperglycemia and glycosuria put in their appearance. This is precisely what was to be expected from earlier experiences in the laboratory; but the clinician is not satisfied until the dicta of physiology are verified, as they have been in this instance, by direct evidence on man.

THE MENACE OF THE FEEBLE-MINDED

The economic and social problems connected with the feeble-minded are of far greater importance than the average "man on the street" realizes. Whatever the cause, the fact is that this class is increasing enormously in all civilized countries. Some figures connected with one state are supplied in a report of the Committee of Visitors of the State Charities of New York. According

1. The Suprarenals and Vasomotor Tonus, editorial, THE JOURNAL A. M. A., March 7, 1914, p. 778.
2. Landau, A.: Studien über Adrenalinglykosurie beim Menschen, Ztschr. f. klin. Med., 1911, lxxix, 201.

to this report, there are in that state, at present, 32,000 feeble-minded persons. Of these, 4,900 are provided for in institutions especially designed for their care, and 4,500 in other institutions, leaving at large 22,600. It has been estimated that of the 32,000 feeble-minded, 10,000 are girls and women of child-bearing age, 1,750 of whom are cared for in institutions designed for the care of such persons, and 1,625 are confined in reformatories, prisons and almshouses, leaving about 7,000 at large in the community. Goddard estimates that, in the way of spreading disease and immorality and increasing the stock of feeble-minded, a girl or woman of this class, of child-bearing age, is three times as great a menace to the community as a feeble-minded boy or man. The Royal Commission of England reports that in that country the feeble-minded are increasing at twice the rate of the general population. The importance of providing, by the establishment of additional institutions and the completion of those under way, for the custodial care or control of a greater number of the feeble-minded cannot be overestimated. The statements of Amos W. Butler[1] of Indiana to the effect that feeble-mindedness produces more pauperism, degeneracy and crime than any other force, that it touches every form of charitable activity, that it is felt in every part of the state and affects in some way all the people, and that its cost is beyond comprehension, are again quoted as the best argument for the policies advocated.

THE AMERICAN JOURNAL OF PHYSIOLOGY

It is announced that Dr. William T. Porter is to retire as editor of the *American Journal of Physiology* at the completion of the current, thirty-third volume of this important publication. It was largely through his initiative that this periodical was founded in 1898; and though the enterprise has received the sanction and official support of the American Physiological Society, from the beginning, Dr. Porter not only has assumed the burden of editorial management, but also has been financially responsible for it. This wholly disinterested service has been of great importance to physiology in general, and of peculiar helpfulness to the progress of the science in America. The possibilities in the way of publication which have been opened to the research workers in American laboratories through the inauguration in this country of journals devoted to the premedical sciences, can be fully appreciated only by those who little more than a decade ago were forced either to send their contributions to publications abroad, often to be printed in a foreign language, or to accept the meager opportunities offered by a few of our own medical journals. Even more important, however, is the influence that the *American Journal of Physiology* has exerted in all parts of the educated world in enhancing the prestige of American physiologists and their work. Its high standard of excellence in form and content forced attention to the research work being accomplished here and speedily placed the rapidly developing American laboratories in the front rank. The enumeration of the prominent contributions which have appeared in the pages of the journal since 1898 would unfold the story of many of the most notable advances that physiology has experienced within this period. Few who have not experienced the demands which unceasing editorial duties make on the energy and initiative, the ingenuity and forbearance of an otherwise engaged individual, can adequately appreciate the splendid ability with which Dr. Porter so generously and willingly undertook and carried this task to the point at which the work cannot easily fail to be sustained for the future. He richly deserves the thanks of those who have the best interests of the thriving science of physiology at heart. We are glad to learn that the American Physiological Society will assume the ownership and editorial control and continue the publication. Until a permanent arrangement is made, the editorial work will be in charge of an editorial committee, of which Prof. W. H. Howell of Baltimore is chairman.

1. Butler, Amos W.: The Burden of Feeble-Mindedness, address before the National Conference of Charities in 1907.

A DANGEROUS PASTRY

The custard has a special place in the dietary of many institutions because of its appetizing taste and aspect, and its nutritious qualities as well. Recently at Cholet in France, immediately after a wedding feast, thirty-eight of fifty persons became violently ill and ten died. A study of the cause has been made by Chantemesse and Rodriguez,[1] who traced the poisoning to a *gâteau à la crème*, a dish containing a custard with a browned meringue. The fact that the custard had been boiled pointed to chemical poisoning, but Chantemesse isolated from the uncooked portions of the whites of eggs remaining from the meringue a peculiarly toxic paratyphoid bacillus, which on injection into animals reproduced the symptoms. The browning of the meringue, by forming an air-tight covering, had provided anaerobic conditions in which the germs could develop. As the custard had been made the day before and kept in the warm kitchen, sufficient time had elapsed for much growth. Some of the custard, eaten when first made, caused no disturbance. The danger from food so contaminated is not only from the bacilli ready to multiply in the host, but also from the toxins already produced by them in the food. These toxins rapidly spread throughout the whole mass, as shown by Chantemesse's experiments with guinea-pigs. The hundreds of cases of poisoning which have occurred from eating such creams and custard dishes all have the one feature in common that some portion of the eggs has not been sterilized by heat. The leathery top of the meringue excludes contamination from flies in such cases, and if the eggs had been infected beforehand the smell would have prevented their use in food. Investigation of the history of the cook at Cholet revealed a series of poisonings from her boiled custards. This was found to be the fifth occurrence of the kind in the last twelve years, during which she had served at various places, although no deaths had previously resulted. She was a healthy woman with no pathologic past, and her blood

1. Chantemesse and Rodriguez: Bull. de l'Acad. de méd., 1914, xxi, 245.

did not agglutinate the bacillus in question, but it swarmed in her stools. This healthy carrier evidently was not a source of danger for others except when the virulence of the bacilli was enhanced by conditions such as were provided by custard and meringue which had been kept in a warm place for thirty hours. In conclusion Chantemesse remarked that the occurrences here related throw light on a celebrated murder trial at Paris in 1840, in which a woman was convicted of having poisoned her husband, who died with similar symptoms after eating a cream preparation which she had sent him at Paris from the country home. Four days had elapsed before he ate the pastry. Traces of arsenic were found in the husband's viscera, but Chantemesse remarks that the arsenic might have been explained by impurities in the bismuth which the husband was known to have taken. The investigation is an interesting one of scientific and practical importance, and incidents of similar character merit most careful study by the physician in whose experience they occur.

Medical News

ALASKA

Holds "Bogus Diploma."—A sworn affidavit signed by Dr. Byrd, the former dean of Willamette University Medical Department, sent to the Alaska Board of Medical Examiners states that the diploma held by Ernest Charles Dalton, now residing at Valdez, was obtained by him "through deception and fraud."

ARKANSAS

New Officers.—Searcy County Medical Society at Marshall: president, Dr. Louis D. Robertson, Leslie; secretary-treasurer, Dr. Andy S. Melton, Snowball.

Railway Hospital at Argenta.—The board of the hospital service of managers of the Missouri Pacific-Iron Mountain System, has decided to erect a hospital at Argenta, and has appropriated $5,000 for that purpose.

Small-Pox.—Under date of February 25 small-pox was reported from Elm Springs, Ark., where nine deaths had occurred from the disease. Small-pox was brought to Elm Springs by a woman and her little girl who had recently come from Tampico, Mexico.

Personal.—A banquet was given at Warren, February 26, in honor of Dr. G. S. Porter. Dr. Porter, after fifteen years of practice in Warren, is to move to California.——The house of Dr. George F. Jackson, Little Rock, was destroyed by fire, Feburary 13, with a loss of about $5,500.

CALIFORNIA

Stanford Medical Lectures.—The fourth of the course of six popular medical lectures, held under the auspices of the Stanford University at Lane Hall, will be delivered March 27, by Dr. Walter W. Boardman on "The X-Ray in Medicine and Surgery," with demonstration.

Personal.—Dr. and Mrs. Ellis W. Jones, Los Angeles, sailed for Europe, February 28.——Dr. Thomas D. Maher has succeeded Dr. Emmet L. Wample as medical inspector of the public schools of San Francisco.——Dr. Norman Bridge, Los Angeles, who has been seriously ill for several days, is reported to be improving.

Leprosy Introduced into State.—Reports have been made of leprosy being introduced into California by Mexican refugees. There have been four cases reported in San Bernardino County, three in Los Angeles and three in San Francisco, all the infected persons being Mexicans. The State Board of Health, at a meeting held February 28, adopted a resolution putting leprosy on the list of quarantine diseases.

The Hooper Foundation.—The opening ceremonies of the Institute for Medical Research, founded by Mrs. George William Hooper in memory of her husband, were held March 7 at the University of California Hospital, San Francisco. After an address by Hon. Curtis H. Lindsey, the president, Henry S. Pritchett of the Carnegie Foundation spoke on "The Value of Medical Research to a Great City." Dr. Richard Mills Pearce, Philadelphia, delivered an address on "The Opportunity of the University in Medical Research." After the ceremonies, a reception was held in honor of Mrs. George William Hooper. Mrs. Hooper has given $1,000,000, yielding an annual income of about $50,000, as an endowment fund to the Institute. The advisory council will consist of Henry S. Pritchett; Dr. William H. Welch, Baltimore; President Benjamin Ide Wheeler, University of California; Dr. Herbert C. Moffitt, dean of the medical department of the University; Mr. C. F. Connelly, San Francisco, and Dr. Richard Mills Pearce, University of Pennsylvania.

ILLINOIS

Tuberculosis Patients Transferred.—The new Cook County Tuberculosis Hospital, Oak Forest, received 135 patients March 12, transferred from the old institution at Dunning.

Clinical Day at Danville.—Under the auspices of the Vermillion County Medical Society, an all-day clinic was held at St. Elizabeth's Hospital, March 9, with fifty physicians in attendance. In the evening the Sisters of the hospital served a dinner, after which a meeting of the society was held.

Personal.—Dr. John J. Grant, Freeport, has been appointed local surgeon of the Illinois Pacific System.——Dr. John W. Seids, Rock Island, fractured his arm while cranking his motor-car, March 4.——Miss Velora E. Randel, Chicago, has been appointed a member of the staff of the State Nurse Examiners.——Dr. Harry R. Wormeley and family, Shabbona, have gone to Vienna for two years.——Dr. Louis Ostrom has been elected president, Dr. Carl O. Bernhardi, vice-president, and Dr. John C. Souders, secretary-treasurer, of the medical and surgical staff of St. Anthony's Hospital, Rock Island.

Chicago

Personal.—Dr. Abraham J. Moss, for five years in charge of the Mount Sinai Hospital, New York, has been appointed superintendent of the Maimonides Kosher Hospital, Chicago.

Senn Monument.—Dr. Truman W. Brophy, representing the Senn Club, presented before the board of councilors of the Chicago Medical Society a project to raise $25,000 for the erection of a monument to Dr. Nicholas Senn in Lincoln Park. The council took favorable action regarding the movement and authorized members of the society to attempt to obtain the subscription required, more than one-half of which is already subscribed.

KENTUCKY

Personal.—Dr. Henry G. Reynolds has succeeded Dr. Henry M. Childress, resigned, as ophthalmologic surgeon of the Children's Hospital, Paducah.

Sanitarium Burns.—The Meredith Sanitarium, Scottsville, was burned to the ground, March 11, with a loss of $10,000, partially secured by insurance. No casualties occurred.

Honor Semi-Centennial of Physician.—The Oldham County Medical Society, at its meeting at Lagrange, was given a dinner by Dr. Edgar D. Burnett, Anchorage, in honor of Dr. John H. Speer, Brownsboro, who has practiced in the county for fifty years.

Louisville City Hospital Items.—An eye clinic has been added to the Hospital, under the charge of Dr. James M. Ray.——The Hospital and contents have been insured for $200,000—$150,000 on the eleven buildings, and $50,000 on the contents.——The term "intern" has been abolished, and hereafter the members of the house staff will be known as resident physicians.

Small-Pox in Kentucky.—According to a report of the secretary of the State Board of Health during February, small-pox was prevalent in eighty-three of the 120 counties of the state. In many communities forty or fifty cases occurred, which were not promptly reported. Kentucky has a compulsory vaccination law. The State Board of Health has issued a letter to the public, urging vaccination and warning the people that small-pox could occur only in individuals who have not been properly vaccinated.

LOUISIANA

Will Rebuild Sanitarium.—Dr. E. M. Ellis of the Crowley Sanitarium, which was recently burned, will, it is understood, rebuild the institution as a two-story building, with accommodations for twenty-four patients.

Societies Reorganize.—Point Coupée Parish Medical Society was reorganized at New Roads, February 19, and Dr. Robert M. Carruth, New Roads, was elected president; Dr. Louis E. Bergeron, vice-president, and Dr. Marie O. Becnel, New Roads, treasurer. Dr. Fred J. Mayer, president of the State Medical Society, in his address, accentuated the necessity of organizing the county societies as a unit.——Jefferson Parish Medical Society was organized at Jennings, March 2, with the following officers: president, Dr. George W. Remage, Jennings; vice-president, Dr. Valerion A. Miller, Lake Arthur; secretary-treasurer, Dr. D. C. Foy.

Personal.—Dr. Sidney D. Porter, State Sanitary Officer, director of the Rockefeller Hookworm Foundation, was operated on in the Touro Hospital, and is reported to be improving.——Dr. J. E. Valarus Bournette, Alexandria, is said to have been found of unsound mind and committed to the Louisiana Hospital for the Insane, Pineville.——Wilfred J. Magee, Chief of the New Orleans Branch Laboratory of the United States Department of Agriculture, has been appointed chemist of the Washington, D. C., Branch Laboratory.——Dr. D. Harvey Dillon, Many, formerly president of the Louisiana State Board of Health, was shot at from ambush, February 11, but was not injured.

MARYLAND

Meetings.—The annual meeting of the Medical and Chirurgical Faculty of Maryland will be held April 28-30.——The seventieth annual meeting of the American Medico-Psychological Association will be held in Baltimore from May 26-29, inclusive. The annual oration will be delivered by Dr. Lewellys F. Barker, the subject being "The Relations of Internal Medicine to Psychiatry."

Illegal Practice of Medicine and Pharmacy Halted.—As the result of the activity of newspaper publicity and the cooperation of the State Board of Medical Examiners with the police department, fifteen persons have been arrested for practicing medicine or pharmacy illegally in Baltimore. These cases will all be prosecuted by the state's attorney at the request of Dr. Herbert Harlan, president of the State Board of Medical Examiners, and a determined effort made to stop the illegal practice of medicine and pharmacy in Baltimore.

Small-Pox in Baltimore Continues.—Health Commissioner Nathan R. Gorter has selected twenty-four extra vaccine physicians and a systematic vaccine campaign of the entire city has been instituted. New cases are cropping out every day. The Health Department has an ordinance before the city council giving it the right to examine arms for marks of successful vaccination. An amendment opposing this and requiring the department to accept as evidence of this a certificate of a reputable physician has been introduced. The health commissioner is opposing this ordinance and it is a debatable question whether or not the department will be successful in having their ordinance passed.

Personal.—Dr. Russell W. Raynor, Vienna, of the staff of the Presbyterian Eye, Ear and Throat Hospital, has left that institution and is now on his way to take up new duties for the government in Kentucky, where he will be employed in combating trachoma.——Dr. Fred Caruthers, formerly coroner of the Northeastern District, underwent a second operation last week at the Franklin Square Hospital for an abscess of the jaw.——Dr. George W. Slater, Walbrook, Baltimore, who was seriously hurt two weeks ago by a fall on the ice, has had a relapse.——Dr. Walter W. Point, Jr., has been appointed assistant surgeon to the Sydenham Hospital, to fill the vacancy caused by the promotion of Dr. John F. Hogan to the place of superintendent, to succeed Dr. Samuel T. Nicholson, Jr., resigned.——Dr. Benjamin Swint, Baltimore, formerly resident physician of St. Joseph's Hospital, is reported to be ill in that institution.

Need for Contagious Disease Hospital.—Dr. William H. Welch and Dr. Winford H. Smith stated in addressing the health conference of the Medical and Chirurgical Faculty on "The Responsibility of the City in Caring for Infectious Diseases" that present conditions in Baltimore city in regard to the care of persons with infectious diseases are inhuman, scandalous, shameless and directly fatal to many who might have had a chance to survive under proper conditions, and that Sydenham Hospital, with its 35 beds, only for scarlet fever and diphtheria was fatally inadequate. They urged as a solution the erection of a hospital with at least 300 beds and provision for all infectious diseases and a bond issue of from $500,000 to $700,000 to pay for it, as Dr. Welch declared it to be unfair for this generation of taxpayers to meet all the expense. The Baltimore City Medical Society has appointed a special committee consisting of Drs. Archibald C. Harrison, Winford H. Smith, Louis P. Hamburger, Charles O'Donovan and Thomas R. Brown to cooperate with the city council in considering plans for the future of Sydenham Hospital.

MASSACHUSETTS

Fire at Carney.—Quick work and good sense on the part of physicians and nurses prevented a panic in the male ward of the Carney Hospital, South Boston, March 4. A fire started on the fourth floor and the work of extinguishing it was directed by Dr. James J. Regan.

Tonsillitis at Wakefield.—Under date of March 3, 300 cases of tonsillitis were said to have occurred in Wakefield and seventy-five new cases were reported on that date. The Board of Health requested the citizens to boil the drinking water. The source of the epidemic had not been determined, but there was some reason to believe it was from an infective milk-supply. The water-supply of this city from Crystal Lake was recently condemned by the State Board of Health, and the town is using water from the Metropolitan water system.

Personal.—Dr. Francis W. Peabody, Boston, has been selected as medical assistant to President Judson of the University of Chicago, on his trip to the Orient, under the auspices of the Rockefeller Foundation, to study medical conditions.——Dr. James Lloyd Wellington, Swansea, who is said to be the oldest graduate of Harvard College, celebrated his ninety-sixth birthday anniversary recently.——Dr. George H. Francis has been elected water commissioner of Brookline, and Drs. Benjamin S. Blanchard and Arthur A. Cushing have been elected members of the school committee.——Dr. J. Harper Blaisdell, Lynn, has been appointed a member of the dermatological staff of the Massachusetts General Hospital.

MICHIGAN

The Sanatorium Campaign.—The active campaign for a Detroit Tuberculosis Sanatorium has been very successful, and by March 9 more than $37,500 of the $50,000 required had been subscribed.

Want Hospital Enlarged.—In the annual budget of the Detroit Board of Health, $1,250,000 was asked for the Herman Kiefer Hospital on Hamilton Boulevard, the enlargement of which is the first step toward the new municipal hospital.

Personal.—Dr. and Mrs. Thomas J. Haines, Three Rivers, sailed for Europe March 17.——Dr. Edward W. Tolley, Grand Rapids, is reported to be seriously ill with appendicitis.——Dr. Henry S. Cole has been renominated for mayor of Whitehall without opposition.——Dr. Mortimer Willson has been elected president of the Port Huron Hospital Association.——Dr. Thomas E. McDonald, Holly, is reported to be ill with rheumatism, and is at the hospital in Pontiac.

MINNESOTA

Water Sources Condemned.—Dr. Robert H. Mullin, Minneapolis, chief of the laboratory division of the State Board of Health, has reported as unsatisfactory thirty-one of the sixty-one sources of supply of the drinking water for railway passengers in the state.

Tri-County Sanatorium Favored.—At a joint meeting of the medical societies of Brown, Watonwan and Nicolett counties held at New Ulm, February 19, a project for a tri-county sanatorium was discussed. It was stated that a building sufficiently large to accommodate forty patients would amply meet the needs of the counties, and that such a building could be erected at a cost of $42,000, one-half of which would be appropriated by the state.

Diphtheria in a Minneapolis Dairy.—The City Health Commissioner, March 5, ordered closed one of the dairies of the cities after four persons connected with it had been taken to the city hospital ill with diphtheria. Several cases of the disease are said to have developed along the milk route of the dairy. The Health Commissioner reported that about one hundred persons had been exposed to the disease by contact with two of the wagon drivers from the dairy. No fatalities occurred, and it is believed that a spread of the disease will be prevented by prompt examination of all suspects and contacts.

Personal.—Dr. Olaf K. Eggen, Minneapolis, was seriously injured in a collision between his motor-car and a police automobile, March 7.——Dr. Max Schem has resigned as medical inspector of the Minneapolis Health Department.——Dr.

Ludens, Berlin, has commenced her research work in the laboratory of Dr. Louis B. Wilson, Rochester.——Drs. J. W. Andrews, Mankato; Henry M. Bracken, Minneapolis; H. Longstreet Taylor, St. Paul; George H. Head, Minneapolis; George S. Wattam, Warren, and Dr. Edward L. Tuohy, Duluth, were appointed directors of the Health League of Minnesota, February 25.——Dr. Rudolph A. Beise, Brainerd, fell while making a professional call at Barrows, breaking his leg near the ankle.

MISSISSIPPI

Polluted Oyster Beds.—Surgeon Richard H. Creel, United States Public Health Service, after an extensive sanitary survey of the Mississippi coast, made during January, states that all the waters of the Mississippi Sound, tributary to Biloxi and Gulfport are polluted and that the oysters taken from beds in that section are unfit.

Personal.—The office of Dr. James P. Wiggins, Eupora, was destroyed by fire, February 1.——Dr. Morris J. Alexander, president of the State Board of Health, Jackson, resigned March 9.——Dr. S. Wade Glass, Dublin, has been appointed a member of the board.——Dr. Daniel W. Coker, Tunica, has been appointed physician and surgeon of the Parchman Prison Farm.——Fire at Union, March 1, destroyed a frame building owned by Dr. Oliver F. Partridge, with a loss of $10,000.

NEW YORK

Small-Pox Ban Removed.—The small-pox ban that has been enforced at Niagara Falls during January and February was removed February 24, on which date there were only sixteen cases of small-pox under quarantine. More than 20,000 persons have been vaccinated in the city.

Charities Board Asks Bond Issue.—The State Board of Charities in its report to the legislature strongly urges the issuance of about $10,000,000 state bonds for improvements and betterments in the institutions under state jurisdiction. The funds are especially desired for the development of Letchworth Village, the New York State Training School for Boys, and for the State Training School for Girls, Hudson.

Physicians Lose Suit.—The appellate court of Rochester, March 4, affirmed the opinion of Hon. Harden C. Williams, referee, dismissing the complaint of Drs. William B. Reid, George C. Reid, J. Orley Stranahan and John E. Groff, Rome, against the Oneida County Medical Society, and dismissed the temporary injunction arresting their expulsion from the society. It was held that the actions were prematurely brought.

University to Receive Park Library.—Under the will of the late Dr. Roswell Park the Medical Department of the University of Buffalo will receive his entire medical library of about three thousand volumes, including files of journals and some rare and valuable medical works. Dr. Park was much interested in the history of medicine and had been collecting old medical books for many years. This will give the university a library of more than twelve thousand volumes.

Novel Demonstration of Water Pollution.—In an action brought by an individual against certain manufacturing concerns in East Syracuse, N. Y., on account of pollution of a stream by factory waste, a bacteriologic demonstration of the water pollution was made and testified to by witnesses at the trial. The State Department of Agriculture ordered that milk from farms where cattle were permitted access to streams polluted by sewage must not be sold. The polluted stream in question runs through a large dairying section, and the suit was brought by the farmers to prevent the pollution of the stream. In order to demonstrate the contamination of the water red bacteria (*Bacillus prodigiosus*) were placed in the stream where they multiplied and were traced by the city bacteriologist of Syracuse, Dr. F. M. Meader, to a point 6,500 feet down the stream where the water containing the bacteria was drunk by a cow. It was found that the milk from the cow was colored red by bacteria. The city bacteriologist was put on the witness stand to show this fact in an attempt to prove that the typhoid bacillus might be transmitted to the milk in the same manner. This is an interesting form of animal experimentation to prove water contamination.

New York City

Dr. Bryant Seriously Ill.—Dr. Joseph D. Bryant, eminent surgeon, formerly state health commissioner, and president of the American Medical Association in 1907 and 1908, is reported to be seriously ill with diabetes at St Vincent's Hospital.

Personal.—Dr. W. Congers Herring has accepted a position as medical director of Dr. Strong's Sanitarium, Saratoga Springs.

Food Conference.—A food conference was held on the evening of March 19 at the Academy of Medicine, at which Drs. Bigelow, Mary Pennington, Graham Lusk, Mendel and others spoke. In the afternoon there was a preliminary conference on the cost of clean and wholesome food.

A New Publication.—The first number of a new publication, *Clinic Notes*, has been issued by the Association of Tuberculosis Clinics of this city. It gives a tabulated statement of the tuberculosis problem in the city and shows how the clinics are solving it. It also gives news items, health department announcements and items of general interest.

New Tuberculosis Clinic for Queens.—A clinic for the treatment of tuberculous patients has been opened at Flushing, L. I., in the district comprising Long Island City, College Point, Ridgewood, Astoria, Corona, Whitestone and Bayside. While the clinics are held only three days a week at present, it is announced that there will be a night clinic in the near future.

Reproduction of Documents.—Since the recognition of the importance of vital statistics, one of the chief obstacles to the systematic collection of facts in a large community has been the immense amount of clerical work involved. The Bureau of Records in Manhattan is solving this difficulty by utilizing photography wherever possible to perform this hitherto clerical work. The process is applicable to all documentary evidence and may have entirely unlooked-for extensions.

The Sale of Bichlorid of Mercury.—The Board of Health has adopted a resolution to the effect that no person shall sell or offer for sale bichlorid of mercury in the dry form except on prescription of a duly authorized registered physician or veterinarian, and then only in tablets of a particularly distinctive form and color, labeled POISON on each tablet and dispensed in sealed glass containers conspicuously labeled with the word POISON in red letters. This does not apply to any preparation containing one-tenth of a grain or less of bichlorid of mercury.

Passengers with Typhus.—The steamship *La Savoie*, after passing the routine examination at quarantine, landed its passengers at Ellis Island where one of the steerage passengers fainted while in line. When he was examined it was found that he had typhus fever. All of the 667 steerage passengers who had come from the ship were hustled aboard again and the 130 occupying the compartment with the typhus patient were taken to Hoffman Island for further observation; the other steerage passengers have been released.——The death of a Greek steerage passenger of typhus fever, caused the health officers to hold the steamship *Pannonia* on her arrival from the Mediterranean. More than two hundred steerage passengers were transferred to Hoffman Island.

Inoculation Reports Contradicted.—Several weeks ago some of the more sensational newspapers printed statements to the effect that forty-eight children, many of whom were attending the public schools, had been infected either through carelessness or by inoculation for experimental purposes with "loathesome diseases" in hospitals and implicated some of the most honorable members of the medical profession.

It was claimed that the statements were based on a report made by B. S. Deutsch who used the alleged results of this investigation to support the antivivisection measures that were being pressed in Albany. Dr. Sigismund S. Goldwater, the health commissioner, took up the matter and investigated the list on which Deutsch based his statements to find that of the forty addresses given on the Deutsch list, fifteen families could not be found, and in not a single child among the other twenty-five families was syphilis found; that there was no evidence of the inoculation of any of these children, and in fact twenty-four had never been patients in any hospital. Dr. Goldwater concluded in giving the results of this investigation, "Truth and antivivisectionists are utter strangers."

NORTH CAROLINA

Personal.—Dr. M. Hall Fletcher, Asheville, has been elected president of the Asheville Motor Club.——Dr. Benjamin E. Washburn, Rutherfordton, late field director of the Hookworm work in North Carolina, has been elected whole-time health officer of Nash County.——Dr. William N. Nebane, Hillsboro, has moved to Greensboro.——Dr. Samuel A. Alexander, Wilmington, has been appointed a member of the staff of the General Hospital of the Atlantic Coast Line, Waycross, Ga.

Hospital Notes.—Construction work has been begun on the Elizabeth City Hospital. The hospital is to be in the shape of a Greek cross, and is so arranged as to have sunlight in each of the fifty rooms. The sanitary equipment will be of the most modern character.——Work on the initial unit of the Mission Hospital, Asheville, will begin shortly. The building will cost $50,000, and in addition to the administration rooms, will accommodate sixty patients.——Mercy Hospital, Durham, was formally opened, March 4, and is to be a general hospital. It occupies the site of the former Corcoran Hotel, is commodious, well arranged and has been equipped in modern style. ——Drs. Andrew B. Drafts, William R. Kirk, J. Frank Cranford, Guy E. Dixon, James L. Egerton, J. Stevens Brown and William B. W. Howe are announced as the staff of the Patten Hospital, Hendersonville.

OHIO

Personal.—Dr. Florus F. Lawrence, Columbus, who is ill at his home with pneumonia, is reported to be improving.——Dr. John B. Scott, Hamilton, is said to be in a critical condition from a cerebral hemorrhage.——Dr. Don C. Hughes, Findlay, has entered St. Vincent's Hospital, Toledo, to undergo an operation.

Cincinnati

The Tuberculosis Fight.—Surgeon Dana E. Robinson, U. S. P. H. S., arrived in Cincinnati, March 6, to make an investigation into the causes of tuberculosis in the city. The investigation is expected to take about two years.

Personal.—Dr. Daniel S. Heyn has succeeded Dr. Herbert A. Brown as workhouse physician.——Dr. J. Stewart Hagen has succeeded Dr. Archibald I. Carson as surgeon of the police and fire departments.——Dr. Oliver P. Coe and Dr. Archibald I. Carson have been appointed to assist Dr. Hagen.

Monod and Edsall Address Academy.—Dr. Gustav Monod, Paris, delivered an address before the Cincinnati Academy of Medicine on "Intestinal Disorders." By unanimous vote he was elected an honorary member of the Academy. Dr. Monod also delivered a cinemotograph lecture on "Movements of the Intestines," March 6.——Dr. David L. Edsall, of Harvard Medical School addressed the Cincinnati Academy of Medicine on "Studies in Respiration," illustrated by lantern-slides and roentgenographs.

PENNSYLVANIA

Hospital Addition.—The contract has been awarded for a three-story fireproof building for the St. Mary's Hospital at Scranton.

New Officers.—Women's Medical Society of Pittsburgh, February 24: president, Dr. Laura G. Shrom; recording-secretary, Dr. Myrtle Jack, Beechview; corresponding secretary, Dr. Anna M. Stanton.

Scarlet Fever in State Hospital.—Five cases of scarlet fever have developed at the Norristown State Hospital, and the trustees have decided to refuse admission to all visitors for twenty-one days.

Health Talks.—A health lecture will be given under the auspices of the Allegheny County Medical Society at the East Liberty Branch of the Young Men's Christian Association, March 24, by Dr. James I. Johnston, on "Cleanliness, Mental, Moral and Physical."

Trachoma at Greenville.—Seven cases of trachoma were found among the laborers in the Carnegie mills at Greenville. The Board of Health physician has communicated with Dr. Samuel G. Dixon, State Health Commissioner, and a more thorough investigation will be made under his direction.

Free Syphilitic Tests by the State.—The Bulletin of the York County (Pa.) Medical Society for March contains action by that body asking that the state shall give free Wassermann and Noguchi tests to needy patients of practitioners. The State Commissioner of Health, Dr. Samuel G. Dixon, has sent a qualified favorable response.

Vaccinate Workmen.—Dr. John J. Mullowney, Easton, assistant chief medical inspector of Pennsylvania, and Dr. Jacob L. Mowery, Lancaster, State Medical Inspector for Lancaster County, attended by two state troopers, went to Bainbridge and Billmyer, March 7, and began a wholesale vaccination of quarry workmen. About a week earlier eight cases of smallpox developed among the employees of the Wrightville Lime and Stone Company.

Personal.—Dr. W. R. Kistler, Lehighton, fell downstairs recently, fracturing several ribs.——Dr. Samuel G. Dixon, State Commissioner of Health, Harrisburg, has been appointed local physician of the Pennsylvania System.——Dr. James F. Edwards has appointed Drs. Charles F. Reif, John Conway, Alfred W. Crozier and Walter B. Orbin as medical inspectors of Pittsburgh.——Dr. George R. Moffitt has been appointed bacteriologist, chemist, meat and milk inspector of the State Health Bureau of Harrisburg.

Admission to Public Hygiene Course.—At the regular meeting of the Board of Trustees of the University of Pennsylvania held March 9, it was decided that beginning with the session 1914-15 all candidates for the degree of Doctor of Public Hygiene shall be required to have identically the same preliminary education as that now demanded of those entering on medical courses leading to the degree Doctor of Medicine; that is to say, at least two years of college work, plus a specified amount of physics, chemistry and biology.

Physicians Aid in Tuberculosis Campaign.—On March 11, in a letter to the 11,000 practicing physicians of the state, Dr. Samuel G. Dixon, State Commissioner of Health, called attention to the free treatment that the state offers to all indigent sufferers from tuberculosis, and requested them to refer all poor persons suffering from that disease to the state dispensaries, located in all of the cities and in the principal centers of population throughout the state. Three modern sanatoriums, conveniently located to every portion of the state, have been provided for those that can go away from home and a system of dispensaries for those who cannot, have been organized, and in all these treatment is absolutely free. Admission to the state sanatoriums can be obtained by application to any of the 114 dispensaries.

Philadelphia

Warn Against Raw Milk.—On March 8 the Bureau of Health and Charities issued a warning of the danger to adults of septic sore throat in raw milk. This resulted from the rule of the department to require all milk and cream brought to the city to be pasteurized.

Gift to Women's Hospital.—The alumnae of the Women's Medical College of Pennsylvania started a campaign last week to raise $500,000 additional endowment. The alumnae itself subscribed $6,500, and one of the corporators, who prefers to remain anonymous, has given $10,000.

Club Women Want Bread Wrapped.—Representatives of seven of the city's foremost and most active civic associations held a conference with Acting Director Wilson of the Bureau of Health and Charities, March 12, to obtain enforcement of state regulations requiring all food products to be kept, offered for sale and delivered to buyers only under sanitary conditions. The especial aim of these associations is that bakers be required to deliver all bread and pastry wrapped in waxed paper.

Change of Treatment of Insane.—New methods of handling cases of indigent insane persons will be established April 1, when the psychopathic ward at the Philadelphia General Hospital will be put on a different basis than in the past. The purpose of the changes will be to facilitate the admission of persons suspected of having mental disorders so that they may have the advantage of treatment without being committed as insane. All such patients will be kept under observation for thirty days, at the end of which time, if they need further attention, they may be sent to the State Hospital for the Insane, Norristown.

Housing Plan for Children.—Dr. Walter S. Cornell, chief of the school medical inspectors, presided at a conference, held at the House of Detention, March 13, whose object is the better care of defectives. Because of lack of accommodation in this part of Pennsylvania, many feeble-minded children are kept in hospital wards. Other meetings will be held to draw up comprehensive plans for presentation to the next legislature, with the idea of making the state, county and city jointly responsible for the care of such defectives. Representatives of the Juvenile Court Society for the Protection of Children from Cruelty, Children's Aid Society and the Children's Agent of the Department of Health and Charities were present at the conference.

In Honor of S. Weir Mitchell.—The College of Physicians of Philadelphia, the American Philosophical Society, the Library Company of Philadelphia, the Jefferson Medical College and the Academy of Natural Sciences announce that a meeting will be held in honor of the late Dr. S. Weir Mitchell, March 31, in the Hall of the College of Physicians at 8:15 p. m. Dr. James C. Wilson, president, is in charge of the program, and addresses will be delivered by Dr. Talcott Williams, New York

City; Dr. William H. Welch, Baltimore, and Mr. Owen Wister, Philadelphia.——At the meeting of the Board of Trustees of the University of Pennsylvania, March 9, resolutions of respect to the memory of Dr. S. Weir Mitchell, who was for many years a member of the board, were unanimously adopted.

Personal.—Dr. J. Moore Campbell has been appointed chief of the Division of Biologic Products.——Dr. Henry Sykes, for years chief resident of the Philadelphia General Hospital, is ill in the Jefferson Hospital.——Dr. Leon Jonas was elected to the Woodward Fellowship in physiologic chemistry at the last meeting of the Board of Trustees of the University of Pennsylvania.——Dr. J. William White, who is making a tour of the world with Mrs. White, was entertained by a group of University of Pennsylvania men at a dinner at Hongkong, January 23.——Acting Director Wilson of the Department of Health and Charities, on March 10 appointed Dr. William H. Walsh acting resident of the Philadelphia General Hospital. Dr. Walsh's place as superintendent of the Philadelphia Hospital for Contagious Diseases will be taken temporarily by the supervising nurse, Miss Roberta M. West. Director Wilson at the same time appointed Dr. Wilfred W. Hawke and Dr. Alfred J. Ostheimer specialists in the field of mental diseases, as committing physicians in the psychopathic ward of the Philadelphia General Hospital.——Dr. William W. Weaver has resigned as police surgeon of Philadelphia.——Dr. Ellwood R. Kirby, chief of staff of St. Mary's Hospital, is seriously ill at his home from septicemia, due to an operation wound.

SOUTH CAROLINA

Personal.—Dr. J. Austin Ball has been elected chairman and Dr. J. Mercein Green, secretary, of the Charleston Board of Health.——Dr. Charles A. Mobley, Rock Hill, has returned from New York and has opened an office in Charleston.

Pellagra Hospital Bill Defeated.—By a vote of 31 to 23 the House of Representatives of South Carolina killed the Sullivan bill providing for the establishment by the state of a hospital for the treatment of pellagra and the appointment of a commission to study the disease. The bill proposed an appropriation of $25,000 for the hospital and $10,000 for the maintenance of the commission. The bill had previously passed the Senate by a large vote.

Dr. Saunders Exonerated.—The report of the committee of the legislature, appointed to investigate into the complaints, innuendos, inquiries and charges against Dr. Eleanora B. Saunders of the State Hospital for the Insane, Columbia, shows that no evidence was found to sustain any of these charges, and that there was no intention of wrong-doing. The report was adopted by both houses of the legislature without dispute.——A handsome silver loving-cup was presented to Dr. Saunders, March 5, "by the women of Columbia as a token of their admiration for her ability, their confidence in her as a woman and their faith in her integrity of purpose and in her work."

GENERAL

Pennsylvania Physicians to Meet at Atlantic City.—The executive committee of the Pennsylvania Railway Surgeons' Association, at its meeting in Philadelphia, March 3, decided to hold its annual meeting June 19 and 20 at the St. Charles Hotel, Atlantic City.

District Society Organized.—At a meeting of the physicians of Modoc and Lassen counties, California, and Lake County, Oregon, held in Alturas on the invitation of the Modoc County Medical Society, a district medical society was organized. A banquet was given the visiting physicians by Drs. Walter E. Coppedge, John Stile and Alexander Gibson, all of Alturas.

Bureau of Labor Safety.—A bill provided for the creation of a bureau of labor safety, in the Department of Labor, was passed unanimously by the National House of Representatives, March 11. It is proposed by the bill that the bureau investigate, test and recommend the adoption of the most effective devices for reducing the hazard of various occupations. It also provides for a museum of labor-safety devices.

Bequests and Donations.—The following bequests and donations have recently been announced:

Dominican Sisters of the Sick Poor, and Little Sisters of the Poor, Brooklyn, each $5,000; St. Rose's Free Cancer Home, $1,000, by the will of Lillian C. McGovern.

Maine General Hospital, Portland, $5,000, by the will of Mrs. Annie Louise Cummings.

Goshen (Ind.) General Hospital, $2,700, by the will of Dr. J. A. Cook, Goshen.

Children's Aid Hospital, New York City, $5,000, by the will of Dr. Michael Jordan, Logansport, Ind.

Missouri Valley Physicians to Meet.—The semi-annual meeting of the Medical Society of the Missouri Valley will be held at Lincoln, Neb., March 26 and 27, under the presidency of Dr. Flavel B. Tiffany, Kansas City. The first day will be devoted to the reading of papers, and a dinner will be given by the Lancaster County Medical Society between the afternoon and evening sessions. The second day will be devoted to a clinical session at the State Orthopedic Hospital, followed by a symposium on Corneal Ulcer in the Convention Hall in the afternoon.

Typhoid from Oysters in the Canal Zone.—According to the *Canal Record*, it has been determined that a number of cases of typhoid fever under treatment in the hospital at Ancon Hospital and in Panama were due to native oysters sold in Panama. Examination of the oysters in the laboratory of the Ancon Hospital showed them to be contaminated with sewage. The health officer of Panama has issued a warning against the eating of these native oysters. The captain of the port of Panama has prohibited the placing of oysters in certain portions of the bay liable to contamination by sewage.

Civil Service Examinations.—The United States Civil Service Commission announces an open competition for medical intern for both men and women, to be held April 8. From those eligible, certification will be made to fill positions at the Washington Hospital for the Insane, Washington, D. C., with $900 a year and maintenance. Graduation from a reputable medical college is a prerequisite, and the applicant must have graduated not later than 1909, unless he has been continuously in hospital, laboratory or research work, along lines of psychiatry since graduation. The applicant must be a citizen of the United States, unmarried and 20 years of age or over, on the date of the examination. Persons who answer the requirements and desire to take this examination should apply at once to the Civil Service Department, Washington, D. C., for Form 1312.

Cancer Society to Meet.—The next meeting of the executive committee of the American Society for the Control of Cancer will be held Saturday, April 4, at 6:30 p. m., at the Hotel Martinique, Broadway and Thirty-Third Streets, New York City. Arrangements have been made for a special meeting of the society on April 10 at 8:30 p. m., at the New York Academy of Medicine. This time has been selected that those attending the meeting of the American Surgeons' Association may be present. The public is also invited. Dr. William J. Mayo, Rochester, Minn., president of the American Surgeons' Association, and Frederick L. Hoffman, LL.D., statistician of the Prudential Insurance Company, will discuss the prevalence of cancer and its control; Dr. Francis Carter Wood of the Crocker Research Laboratory will explain the investigation of cancer undertaken under the auspices of Columbia University, and Dr. J. Collins Warren, president of the Harvard Cancer Commission, will give an account of the establishment of the commission and of the research work it is directing at the Collis P. Huntington Memorial Hospital and at the Harvard Medical School.

FOREIGN

Plague Reported.—Under date of March 7, it was reported via Miami, Fla., that thirty cases of bubonic plague had been found in Havana, and that certain steamers were not allowed to dock at Key West. Subsequent reports, however, stated that all suspicious cases had been proved negative. Only one case of the disease really existed. The patient is recovering. On March 15 a second case was reported. The situation is under control.

Prevention of Accidents to the Deaf.—An organization of 600 deaf persons in Berlin recently sent the chief of police a petition regarding the use of a white band to be worn by the deaf as a sign to chauffeurs and drivers in general that the wearer is unable to hear the auto horn or shout of warning. The Berlin authorities declined to take any official steps in the matter, and the daily press is now being urged to take up the question and call for some warning sign of this kind to be worn by the deaf and be heeded by drivers as an important aid in checking the frequent street accidents to the deaf.

CANADA

Small-Pox on Ship.—Twenty-six steerage passengers of the Russian-American liner *Russia*, landing at Halifax from Lebau, March 7, were taken to the quarantine station because of a suspected case of small-pox.

Legislation against Phosphorus.—White phosphorus is the subject of a resolution submitted to the federal parliament at

Ottawa. The resolution calls for the total prohibition, manufacture and sale in Canada of matches made with white phosphorus.

Typhoid in Quebec Province.—An epidemic of mild typhoid fever prevails in the towns of Iberville and St. John's. It is said that two thousand of a population of seven thousand are suffering from the disease. Several deaths have been reported.

New Society.—The Ontario County Medical Society was established at Port Perry, Ont., March 11. Dr. F. Samuel Mellow, Port Perry, was elected president and Dr. Joseph A. McClintock, Uxbridge, secretary-treasurer. A tariff of fees was arranged.

Recommends Drastic Changes.—Dr. Séraphin Boucher, the medical officer of health of Montreal, recommends drastic changes and a complete reorganization of the whole health services of that city. Everything relating to public health and hygiene is to be brought under one department. He desires particularly to get control of water analysis, so as to publish necessary daily reports. Changes are also planned for medical inspection of schools; a library of current works and publications, additional food and contagious diseases inspectors and a better milk-supply and a thoroughly equipped statistical section.

Personals.—Dr. J. Albert Demers, Montreal, is visiting in Paris.——Dr. John Francis Teed, Dorchester, N. B., has been appointed surgeon to the Maritime penitentiary, succeeding the late Dr. Donald McDonald.——Dr. Angus W. McPherson, medical officer of health, Peterboro, Ont., has resigned.——Dr. Joseph N. Roy has returned to Montreal after spending fifteen months in Africa and South America.——Dr. Charles J. Fagan, Victoria, B. C., who for fourteen years has been medical officer of health to British Columbia, has been superannuated. ——Dr. George Harrison, Clifford, Ont., was operated on for appendicitis, February 27.

University News.—A test case is being tried by the Royal Victoria College for Women of the application of a woman graduate for admission to the faculty of medicine. The final decision rests practically with the hospitals. If the application proves successful, a number of women of the Royal Victoria College intend to take a degree in medicine after obtaining their B.A. or B.Sc.——After serving the Montreal General Hospital for thirty-one years as senior surgeon, Dr. Francis J. Shepherd tendered his resignation February 17.——Dr. Edmond M. Von Eberts has been elected to a position on the senior surgical staff.——The Hamilton (Ont.) City Hospital will receive this year from the city $158,000, with a maintenance grant of $130,885, and an additional grant of $28,000 for improvements and equipment. The latter is in addition to $125,000 recently voted for hospital improvements. The present hospital is greatly overcrowded and does not meet modern requirements, and the Ontario government has again withheld the annual grant of $7,000.——Mr. John Ross Robertson, chairman of the Board of Trustees of the Hospital for Sick Children, Toronto, points out that the Children's Hospital received from the city of Toronto $36,272. This was for fifteen months from the end of September, 1912, to the end of 1913, and not for one year, as pointed out by the mayor. The Children's Hospital has recently come in under the hospital act for Ontario, and is now on the same plane as regards civic and provincial grants as other hospitals in the province. ——Dr. William H. Hattie, who has been superintendent of the Hospital for the Insane of New Brunswick for fourteen years, has resigned and has been appointed chief health officer for the province. The assistant physician in the hospital has been advanced to the position of superintendent. Dr. Frederick E. Lawlor, Dartmouth, N. S., and Dr. E. F. Moore have been appointed assistants.——Plans have been prepared for the new General Hospital at St. John, N. B. The building will be four stories in height and have accommodation for 140 patients. It is to cost $279,000.——St. Michael's Hospital, Toronto, is again to enlarge during the coming summer; $150,000 will be spent on the new improvements, which will include a nurses' residence.——Dr. William A. G. Bauld has been appointed medical superintendent of the Montreal Maternity Hospital in succession to Dr. McEachren, who has gone to the superintendency of the Vancouver General Hospital.——The annual report of Dr. James V. Anglin, superintendent of the New Brunswick Provincial Hospital, Lancaster, shows that at the beginning of the last fiscal year 585 patients were in the institution, that 173 were admitted during the year, 56 died and 96 left the hospital, the year ending with exactly 600 patients in residence.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Feb. 27, 1914.

Medical Remuneration under the Insurance Act

The great improvement in the financial position of physicians in consequence of the insurance act has been referred to in previous letters to THE JOURNAL. Some further facts will be of interest. It appears that in populous poor districts where a large number of patients are daily hurried through physicians' offices, the effect has been in many cases to double their incomes. In wealthier areas and country districts the increase ranges from 20 to 50 per cent. In some cases physicians find it no longer worth while to see non-insured persons for 24 or 36 cents, and have raised their fees. Some attempt may be made to calculate the advantage by recalling the conditions prevailing before the act came into force. About 12,000,000 persons were to be insured, and of these about 4,500,000 were in clubs of one description or another which paid an average capitation fee of about 88 cents. The remaining 7,500,000 consisted of better-class artisans, clerks and others who paid something better than the average club rate. On the other hand, a much larger group of persons were included who received their medical attendance through the poor law, hospitals, dispensaries, etc., and spent and, indeed, could spend very little on medical attendance. At the time the act was under consideration an actuarial investigation made by the government showed that the average remuneration of physicians per head of the population was only $1 for medical attendance and drugs. Now under the insurance act over $2 is paid. The greater remuneration given by the government was stated to be justified on two grounds—that under the act physicians' work would be increased and that an improved service would be given to the poor. It is true that there has been some increase in the amount of work done, owing partly to the fact that many persons who before went to hospitals are now treated by panel doctors, and partly owing to the fact that those who were previously private patients seek medical assistance much oftener since they have become contract patients under the act. Against this must be set the fact that many insured persons prefer to resort to private doctors. The improved medical service which the government announced does not appear to have been achieved. The act defines the treatment to which the insured person is entitled as that which can be given by an ordinary physician as distinguished from a specialist. This appears to have been interpreted as the barest possible minimum, and no restriction has been placed on the number of patients which the physician may take. Instead of the service being improved, the old lodge system with all its faults has been extended. Mr. Lloyd-George has stated that for the money now available a complete national service with nurses, specialists and bacteriologic laboratories could have been provided. But, of course, in the establishment of such a system grave difficulties have to be surmounted. It is likely to come some day.

The Organization of Tropical Medicine and Hygiene in England

In 1904 an advisory committee for a tropical disease research fund was established by the Secretary of State for the Colonies. In 1912 it had an income of $16,000, toward which the imperial government contributed $5,000, the government of India $3,500, and the various dominion and colonial governments the remainder. The committee advises the government on questions affecting hygiene and pathology in tropical colonies, and receives from them reports on the diseases there prevalent. Excellent work is now being done in the laboratories in the colonies. It is proposed to increase the opportunities there for research work. As a result of the international conference on sleeping-sickness, held in London in June, 1907, and March, 1908, a central international bureau was proposed to abstract and circulate literature on sleeping-sickness, but the project fell through. The government then established a British bureau which regularly issues a bulletin containing an account of current work in field and laboratory on sleeping-sickness and other trypanosome diseases, maps of distribution, an exhaustive bibliography, and a popular pamphlet on prevention. Later bulletins on kala-azar were issued. It became evident that what was being done for sleeping-sickness could be done with advantage for tropical diseases in general, and therefore a tropical diseases bureau was formed by expansion of the sleeping-sickness bureau. It has an income of $15,000, which is provided by the imperial govern-

ment and the various colonies. It publishes a tropical diseases bulletin about twice a month, the subscription to which is $5 per annum. The tropical diseases of animals are treated in a separate periodical, the *Tropical Veterinary Bulletin*. The bulletins are supplied free to medical and veterinary officers in the colonies.

Radium and Cancer

At the annual meeting of the governors of the Cancer Hospital, Mr. Charles Ryall, F. R. C. S., chairman of the medical committee, described the present position of radium treatment to cancer. He said that although a great deal had been written in the lay press of late concerning radium and the marvelous cures which it had apparently effected, radium had not come to supplant surgery in the treatment of cancer, but to aid it. Cancer was a disease which grew from day to day and eventually reached the incurable stage, and therefore for safety it must be got rid of as early as possible, and the quickest and surest means was still the knife. There were cases, however, in which operation was either inadvisable or impossible, and in these, radium and the Roentgen rays were resorted to. Radium was the most active substance known, and it was proved that it had a definite action on living cells. In cancer it had been found to exert a definite action either by destroying the cancer-cells or by retarding or preventing their growth. The properties of radium were comparatively little known, and therefore radium treatment was in the experimental stage, in which attempts were being made to fathom its effects on disease, especially cancer, to estimate its dosage, and to classify what cases were suitable for treatment by it. That would mean some years of work, and it would, therefore, be well if silence could be maintained on the subject for the next two years until some definite announcement could be made. A definite pronouncement with regard to research might be awaited with confidence, as the radium research work in this country was being carried on systematically. There was an enormous field for research and treatment among the patients at that hospital, but the workers were hampered by the inadequate quantity of radium at their disposal and their inability to procure more owing to its scarcity and enormous cost.

The Imperial Bureau of Entomology

This bureau, started a few years ago by the colonial office, is maintained by the colonial governments and is doing excellent work. During the past year it began to publish its *Review on Applied Entomology*, issued monthly in two divisions, an agricultural and a veterinary and human part. This review is an abstract of papers published in many tongues, including Russian and Japanese, and 860 articles were reviewed in the first eleven months. The bureau has also collected a complete set of laws and regulations against injurious insects of the British dominions and colonies. These will now be correlated and summarized. Some anxiety is felt with regard to the spread of yellow fever after the opening of the Panama Canal. Considerable traffic will be deflected from the yellow-fever-haunted American countries to the west of Asia, and should the *Stegomyia fasciata* be brought with it an appalling outbreak of yellow fever might occur in India. The bureau is investigating the question whether the *Stegomyia scutellaris*, a widely distributed mosquito, especially in Africa, carries yellow fever. The bureau has secured the services of Mr. W. F. Fiske, the well-known American entomologist, to carry out at the expense of the government of Nyasaland a thorough investigation into the bionomics of the tsetse-fly, *Glossina morsitans*, which conveys sleeping-sickness. The *Bulletin of Entomological Research*, which the bureau started at its first foundation, contains only records of original work.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Feb. 27, 1914.

Death of Prof. Paul Spillmann

Dr. Spillmann, professor of clinical medicine at the Faculté de médecine de Nancy, has just died, aged 70. He became national correspondent of the Académie de médecine in 1891 and national associate in 1910. He was president and founder of the Œuvre des tuberculeux lorrains and took much interest in the campaign against tuberculosis. He also gave attention to the study of syphilis and in particular to its effects on the nervous system. He was in touch with German medical literature and translated several German works in collaboration with Dr. Haushalter. He published a Précis de diagnostic médical et d'exploration clinique

Responsibility of Physicians for Omission of Bacteriologic Examinations

The father of a family recently brought suit in the Paris court for 1,500 francs ($300) damages against a physician for omitting to make a bacteriologic examination in a case of membranous angina. The court decided in favor of the defendant on the ground that bacteriologic examination and injection of antidiphtheric serum, while considered advisable procedures by experts in cases of membranous angina, are not at present universally accepted by physicians.

Parallel between American and French Surgery

Dr. Tuffier, *agrégé* and surgeon of the Paris hospitals, made an interesting report before the Société de l'internat des hôpitaux de Paris on surgery in America, based on his recent travels in the United States. He compared French and American organization of instruction and practice of surgery. Striking differences exist in the organization of the centers of instruction and the hospitals. While in France excessive centralization produces a kind of dead level, puts a thousand hindrances in the way of individual initiative and hesitates before an experiment because it would be necessary to undertake it everywhere at once at a heavy expense, in the United States the complete autonomy and financial independence of all the centers of activity, the emulation and even the competition which animates them constantly lead to improvement and the adoption of new methods. One thing that strikes a visitor with regard to American surgery is the team work of the nurses and the assistants, who have often worked together for years. In France, on the other hand, the surgeon changes his assistant every six months. Dr. Tuffier also praises the remarkable work of the research laboratories like the Rockefeller Institute. On the other hand, he finds instruction rather insufficient. The students on leaving the universities are able to attain adequate preparation only by a sojourn in the postgraduate schools, which are, to be sure, admirably organized. In the United States the effort to obtain perfected results in certain favored circles often exceeds the desire to raise the average level of the whole medical profession. Tuffier believes, however, that in France also postgraduate instruction ought to be better organized.

Internship in the Hospitals and Foreign Students

The position of intern in the hospitals being much sought after, many students complain because foreigners are allowed to compete for internships. Having no military service to perform, foreigners have an advantage over French students. To discourage foreign students from competing for internships without having recourse to the discourteous measure of forbidding them, the following expedient has been devised: Two kinds of diplomas are awarded, the *diplome d'état*, which is a prerequisite for practice in France, and the *diplome universitaire*, which does not confer the right to practice. Foreigners most frequently content themselves with the latter. The new regulation under consideration requires the *diplome d'état* for admission to internship. A delegation representing the physicians, surgeons, obstetricians and oculists of the hospitals of Paris and composed of Professors Landouzy, Hartmann, Letulle, Delbet and others has protested against this regulation as opposed to the extension of French influence.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, Feb. 25, 1914.

A Patient Swallows a Tube Containing Radium

A remarkable incident, which caused some anxiety in the medical staff of our hospital, occurred recently, when a patient suffering from cancer of the tongue was treated by prolonged exposure to radium of the diseased area. Although instructed by the physician in charge of the radium department that she must not eat anything while the radium tube was in her mouth, the woman succeeded in getting some food and partook of it. When at the end of the sitting (it lasted four hours) the radium tube should have been taken out it could not be found, and the woman stoutly denied having swallowed it. She was at once examined by Roentgen ray and the presence of the valuable tube—it cost over $3,000—was easily shown. It was at that time in the small intestine of the woman, who at once was operated on. The risk of the sensitive mucous membranes of the abdominal organs suffering from the effects of the radium was too great to permit of waiting until the tube might have come out again *per vias naturales*. The tube was recovered and the patient made a complete recovery after this hazardous experience.

Warning Against the Medical Career

A most unusual action was taken a few days ago by the medical faculty of the Vienna University in order to stop the constantly increasing influx of students to the medical curriculum. This term 640 new students have taken up the study of medicine in Vienna only, the figure beating the record. The senate of the medical faculty has now issued an official warning, addressed to the parents, the teachers and the directors of schools of children between the ages of 16 and 20 years, in which it is pointed out that the medical schools of the seven Austrian universities are overcrowded with students, and that the medical profession is already now more than sufficiently supplied with new doctors for the next six years, when those entering the career this year will get their diploma of M.D. The financial outlook of the doctors is becoming constantly worse, as a large part of the population are at present obliged to enter the sick clubs, and still larger numbers will be removed from the field of the private practitioner when the new national sickness insurance bill becomes a law. At the same time the number of doctors increases proportionately faster than the population (8 per cent. against 1.5 per cent.) and the university facilities—dissecting-rooms, lecture halls and internships in hospitals—are absolutely inadequate to suffice for the numbers applying to work there. It may be noted here that the addition last year of two new dissecting-halls to the Vienna Anatomical Institute has already become inadequate owing to the sudden increase of first-year students, so that the old complaints are again raised, and in the physiologic and chemical institutes the students have to wait for days or weeks before they get their turn to work for half a day or so, apart from the difficulties of obtaining a working place in outpatient departments or wards. The warning goes on to say that if nevertheless the increase of students should continue, the medical faculty would be obliged to consider the institution of a *numerus clausus* by which only those students who come from Vienna and lower Austria would be eligible in the first line, and those coming from other districts and from foreign countries would run the risk of non-admission. Of course this does not apply to postgraduate work, although such a step would be a distinct departure from the paramount leading idea of our universities, "liberty of teaching and learning," and necessarily would be stronger than academic considerations of breach of custom. This action has caused considerable excitement among the circles affected, and it is seconded by the profession as well as by the teaching staff of our universities, as it attacks the evil at its root and gives a way to remedy it. The warning is commented on also in the lay press and in the papers devoted to the interests of schools and teachers, wherein its importance is duly pointed out.

Money for a Cancer Hospital

A sum of $120,000 has been granted recently to the "Austrian Society for Cancer Research" by an eminent philanthropist with a view to enabling the final arrangements for erecting either a special cancer ward in the General Hospital or a real cancer home. The society owns now besides this sum $400,000, so that this half million dollars will be sufficient for at least one hundred beds, if a separate hospital is built, and for about twice as many if an existing hospital is made use of for research purposes.

Diminution of the Height Standard for the Austro-Hungarian Army and Navy

The new recruiting law of the Austro-Hungarian forces stipulates a height of at least 152 cm. (5 feet) for men to be enlisted in the ordinary rank and file of the territorial forces or of the navy, while for those men who will work in the workshops or arsenals or in the offices as clerks, the minimum height will be 150 cm. (1 inch less than 5 feet). The former law required 155 cm. as the minimum for all persons engaged in the army and navy. Furthermore, the new requirements pay increased attention to the antecedents of the men, especially the mental history, and a history of previous epileptic attacks or mental instability will make the man ineligible for the service. In the last year, when, owing to the uncertainty of the political situation, preparations for war included the recruiting of large numbers of men from apparently underfed districts, it was noted that persons otherwise quite healthy did not reach the height limit. These would be lost if the old law should continue in force. At any rate, even with the new law, the supply of men capable for service is but sparingly drawn on, not even 1 per cent. of the population of fifty million being under arms in time of peace, while for war about 4 per cent. are available.

Marriages

ELLIS WILLIAM JONES, M.D., Los Angeles, Cal., to Miss Mary Elizabeth Bradley of Dubuque, Iowa, February 28.

ABDUL M. TEMPLETON, M.D., Denver, Colo., to Mrs. Nellie B. Patton of Boulder, Colo., at Berkeley, Cal., March 2.

WILLIS EDWARDS LOWRY, M.D., to ALICE AGNES STEFFIAN, M.D., both of Laredo, Tex., at Elkton, Ky., March 2.

R. SUMTER GRIFFITH, M.D., Basic City, Va., to Miss M. Maggie Matthews of Afton, Va., February 18.

BLYTHE ROOKS SLEEMAN, M.D., to Miss Rose Ortmann Dawson, both of Pontiac, Mich., Dec. 29, 1913.

RAFAEL C. DUFFICY, M.D., San Rafael, Cal., to Miss Catherine Ellis of Sacramento, Cal., March 7.

JOHN JOSEPH MURPHY, M.D., Lima, Ohio, to MABEL DUNN, M.D., of Lincoln, Neb., at Lima, March 3.

PARK MITCHELL BARRETT, M.D., St. Clairsville, Ohio, to Miss Irene Moyer of Reading, Pa., February 23.

ARTHUR STEINDLER, M.D., Des Moines, Iowa, to Miss Louise Junk of Waterloo, Iowa, March 1.

FRED D. VICKERS, M.D., to Mrs. Charles A. Leach, both of Deming, N. M., February 22.

Deaths

Thomas Morgan Rotch, M.D. Harvard Medical School, 1874; a Fellow of the American Medical Association; a pediatrician of international fame; died at his home in Boston, March 9, aged 64. In 1878 he was made lecturer on diseases of children in his Alma Mater; ten years later was made assistant professor of diseases of children and after five years was made full professor, and since 1903 has been professor of pediatrics. He served as secretary of the Suffolk District Medical Society from 1878 to 1902. He also had been president of the Association of American Physicians. He was the author of textbooks on "Pediatrics" and on "The Roentgen Ray in Pediatrics."

William Bass, M.D. Worcester (Mass.) Medical College, 1856; a member of the Massachusetts Medical Society and councillor for 1879 to 1881, and from 1886 to 1889; formerly vice-president of the Middlesex North District Medical Society, and president of the Medical Journal Society of Lowell; assistant surgeon of the Sixth Massachusetts Volunteer Infantry during the Civil War; in 1873 a member of the common council of Lowell; a member of the medical advisory board of the Lowell General Hospital since its organization; died at his home, February 27, from pneumonia, aged 81.

Paul A. Hartmann, M.D. Jefferson Medical College, 1874; a Fellow of the American Medical Association; formerly president and for 30 years secretary of the Dauphin County Medical Society; once president of the Harrisburg Academy of Medicine; a member of the Harrisburg city council and school board; medical inspector of the State Board of Health, and in charge of the State Tuberculosis Dispensary since its organization; pathologist to the Harrisburg Hospital; for several years state prison physician; died at his home in Harrisburg, March 1, from edema of the brain, aged 63.

William Laville Robinson, M.D. University of Virginia, Charlottesville, 1868; a Confederate veteran; once president of the Medical Society of Virginia; president of the Danville board of health; formerly vice-president of the Southern Surgical and Gynecological Association; president of the Tri-State Medical Association of the Carolinas and Virginia, and Danville Academy of Medicine; died at his home in Danville, Va., March 1, from heart disease, aged 69.

Samuel Rush Sayers, M.D. University of Pennsylvania, Philadelphia, 1855; surgeon in the Confederate service during the Civil War, and attached to the Stonewall Brigade; for three terms a member of the Virginia State Legislature from Wythe County; president of the First National Bank of Wytheville; died at his home in that city, February 23, aged 80.

Charles Hill, M.D. Rush Medical College, 1857; a Fellow of the American Medical Association; one of the organizers of the Minnesota State Medical Association, and formerly state senator; died at his home in Pine Island, Minn., March 3, from pneumonia, aged 85.

Charles Gentsch, M.D. Georgetown University, Washington, D. C., 1873; a Fellow of the American Medical Association; president of the Public Library Board of Cleveland for several years; a veteran of the Civil War; a director of several local banks and manufacturing companies; died at his home in Cleveland, March 5, two months after a surgical operation, aged 72.

Albert Parke Good, M.D. Jefferson Medical College, 1894; a Fellow of the American Medical Association; assistant chief of the neurologic clinic in his Alma Mater, and of the ear, nose and throat clinic of the Medico-Chirurgical College of Philadelphia; died suddenly at his home in Philadelphia, March 5, from heart disease, aged 46.

John R. Whitesides, M.D. St. Louis Medical College, 1875; formerly a Fellow of the American Medical Association; a member of the Arizona Medical Association; superintendent of health of Mohave County, and local surgeon of the Santa Fe system at Kingman; died at Albuquerque, N. M., March 7, from tuberculosis, aged 63.

Henry Tucker Harrison, M.D. University of Maryland, Baltimore, 1874; a member of the Medico-Chirurgical Faculty of Maryland; resident physician of the Maryland School for Boys, Loch Raven; a Confederate veteran; died at his home, Cub Hill, Baltimore County, Maryland, March 4, from pneumonia, aged 69.

Benjamin J. Mayer, M.D. Miami Medical College, Cincinnati, 1885; for ten years sporting editor of the Cincinnati *Enquirer;* well known as a patron of sports; press-agent for the last five years of the Heuck Opera House Company; died at his home in Cincinnati, March 5, from pleural pneumonia, aged 49.

William Thomas Hendon, M.D. University of Alabama, Mobile, 1898; a member of the Medical Association of the State of Alabama; for a year after graduation in the employ of the United States government in South America; died at his home in Ensley, March 4, aged 36.

Joseph Michael O'Malley, M.D. University of Georgetown, Washington, D. C., 1893; a member of the Medical Society of the State of Pennsylvania, and chief-of-staff of St. Agnes' Hospital, Philadelphia, for fifteen years; died in that institution March 3, from nephritis, aged 48.

Robert B. Grammer, M.D. Louisville (Ky.) Medical College, 1883; a member of the Texas State Medical Association; professor of the diseases of children in Fort Worth University; visiting physician to St. Joseph's Infirmary; died at his home in Fort Worth, March 1, aged 52.

Frank Sargent Grant, M.D. College of Physicians and Surgeons, New York City, 1875; for many years chief medical examiner for the Equitable Life Assurance Society and Penn Mutual Insurance Company; died at his home in New York City, March 1, aged 52.

William Bailey Williams, M.D. University of Nashville, Tenn., 1869; formerly of Harriman, Tenn.; a member of the Tennessee Pharmaceutical Association; died at his home in Chattanooga, Tenn., January 30, from empyema following pleurisy, aged 52.

Wellington Locke, M.D. Tulane University, New Orleans, 1909; (license, Miss., 1907); a member of the Mississippi State Medical Association; of Carriere; died suddenly in McNeil, Miss., March 5, from cerebral hemorrhage, aged 41.

John Owen Stow, M.D. University of Colorado, Boulder, 1909; formerly of Gold Hill, Colo; died at the home of relatives in Chesaning, Mich., January 15, from carcinoma of the superior maxilla, aged 32.

Randell McGinley Alexander (license, Franklin County, Pa., 1881); a practitioner of Fannettsburg since 1870; died at the home of his son in Klein, Mont., February 24, from pneumonia, aged 70.

James H. Binns (license, W. Va., years of practice, 1881); a practitioner of Marion County for forty-six years; a veteran of the Civil War; died at his home in Fairmont, February 28, aged 76.

Samuel H. Sparhawk, M.D. Homeopathic Hospital College, Cleveland, 1865; a veteran of the Civil War; died at his home in St. Johnsbury, Vt., March 3, from cerebral hemorrhage, aged 73.

Victor Elmer Hitch, M.D. Jefferson Medical College, 1896; a member of the Nevada State Medical Association; died at his home in Reno, March 7, from edema of the brain, aged 41.

Jonathan M. Bell, M.D. St. Louis College of Physicians and Surgeons, 1864; a member of the State Medical Association of Texas; died at his home in Wichita Falls, February 4, aged 52.

James Columbus Cousins, M.D. Baltimore University, 1891; a member of the Medical Association of the State of Alabama; died at his home in Equality, February 27, from heart disease.

Edmund Brooks Alexander, M.D. University of Pennsylvania, Philadelphia, 1894; of Los Angeles; was accidentally drowned while bathing at Hermosa Beach, Cal., February 16, aged 44.

Eugene S. Head, M.D. Hospital College of Medicine, Louisville, 1882; formerly physician of Macoupin County, Ill.; died at his home in Carlinville, about February 24, aged 59.

William B. Moore, M.D. Georgia College of Eclectic Medicine and Surgery, Atlanta, 1881; of Eatonton, Ga.; died at the home of his sister in Macon, February 25, aged 58.

J. Emile Bernard, M.D. Laval University, Quebec, 1909; of Point St. Charles, Montreal; died in Notre Dame Hospital in that city, Dec. 1, 1913, from appendicitis, aged 32.

John Pringle, M.D. University of Glasgow, Scotland, 1875; president of the East Newark, N. J., Board of Health; died at his home, February 25, from pneumonia, aged 68.

John Burke Freeman (license, Mo., 1883); at one time a member of the Missouri legislature from Livingston County; died at his home in Sturgis, about February 24.

Theodore Dwight Williams, M.D. Hahnemann Medical College, Chicago, 1871; died at his home in Geneva, Ill., February 27, from cerebral hemorrhage, aged 71.

Philip V. Miller, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1879; died at the home of his sister-in-law in Keokuk, March 2, from bronchitis, aged 60.

Ephraim Winfred Spitler, M.D. Medical College of Ohio, Cincinnati, 1885; died suddenly at his home in West Milton, Ohio, March 1, from heart disease, aged 54.

Anna Sarah Marlin Cornwall, M.D. Tufts Medical College, Boston, 1906; a member of the Massachusetts Medical Society; died at her home in Brookline, March 1.

H. Wood, who retired from practice in Mississippi twenty-five years ago; died at his home in Hazelhurst, Miss., January 12, from angina pectoris, aged 64.

Clemens Fulda, M.D. New York University, New York City, 1879; died at his home in Greenport, Brooklyn, N. Y., February 26, from heart disease, aged 65.

Edward Daniel Gottschalk, M.D. St. Louis University, 1906 of Woodriver, Ill.; died in St. Joseph's Hospital, Alton, February 26, from pneumonia, aged 34.

David Emmett Proctor, M.D. University of Louisville, 1893; of Stanford, Ky.; died in the Norton Infirmary, Louisville, February 23, from uremia, aged 44.

William F. Endlich, M.D. Jefferson Medical College, 1885; a practitioner and dentist of Philadelphia; died at his home in that city, February 27, aged 55.

Isaac E. Bennett, M.D. University of Buffalo (N.Y.), 1872; for fourteen years township supervisor; died at his home in Plano, Ill., February 19, aged 66.

Frederick Eri Barrows, M.D. New York University, New York City, 1876; died at his home in Clinton, N. Y., January 9, from chronic bronchitis, aged 64.

Francis Martin Burke, M.D. New York University, New York City, 1890; died at his home in Flatbush, Brooklyn, N. Y., March 3, from diabetes, aged 53.

William F. White, M.D. Pulte Medical College, Cincinnati, 1877; died at his home in Marysville, Ohio, February 28, from heart disease, aged 57.

Stanley Vincent, M.D. New York Homeopathic Medical College, New York City, 1879; died at his home in Catskill, N. Y., February 24, aged 57.

William Tyler Ramsey, M.D. George Washington University, Washington, D. C., 1871; died at his home in Cambridge, Ohio, January 19, aged 66.

Mary Quayle Mathews, M.D. Hering Medical College, Chicago, 1905; died at her home in Chicago, February 25, from kidney disease.

Alexander C. Mackey, M.D. Baylor University, Dallas, Tex., 1904; died at his home in Dallas, January 9, from acute gastritis, aged 37.

James M. Keesor, M.D. University of Louisville, 1893; died at his home in Woodsfield, Ohio, March 2, from pneumonia, aged 46.

Lewis Thomas Lunn, M.D. Jefferson Medical College, 1856; died at his home in Reynoldsburg, Ohio, February 28, aged 84.

John Warren King, M.D. Jefferson Medical College, 1875; died at his home in Vicksburg, Miss., February 26.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

CITROLAX

Trade names which give a misleading impression as to the constituents of the substance involved constitute an especially pernicious form of nostrum activity. The extensive newspaper advertisements of a preparation called "Citrolax" have brought it to the attention of the Association laboratory. From the name of the substance and from various statements and implications in the advertising matter, the purchaser is led to believe that it is magnesium citrate in tablet form and superior to the standard solution of citrate of magnesia.

A tablet taken from a trade package, when placed in a glass of water, according to directions on the carton, yielded a milky solution. As citrate of magnesia is completely soluble in water, the presence of insoluble matter in the tablet aroused suspicion. To determine the nature of this insoluble matter, the tablets were examined by our chemists who report:

LABORATORY REPORT

Two sets of specimens were therefore purchased for investigation. The first were labeled "Citrolax—The Lemonade Laxative—Made and guaranteed by the Citrolax Company of America—Chicago." The second, purchased three weeks later, were labeled "Citrolax—The Effervescent Laxative—Tastes like Lemonade—Prepared only by Foley and Co., Chicago." The probability is that the party who first put it on the market has sold it to the second, the Foley people. The tablets measure about 1¼ inches in diameter by about ½ inch in thickness; they are sold in 10-cent, 25-cent and 50-cent packages, containing respectively one tablet, three tablets and eight tablets each.

When placed in water Citrolax tablets effervesced with liberation of carbon dioxid and dissolved, with the exception of a small amount of a fine whitish powder, giving the solution a turbid appearance. The solution responded to tests for magnesium, sodium and citrate; the presence of potassium or tartrate could not be demonstrated. The insoluble matter was found to be organic, soluble in alcohol and to dissolve in alkaline solutions with formation of a bright red color, which disappeared on acidification and reappeared on being made alkaline. Further tests identified this substance as phenolphthalein. Quantitative determinations of the phenolphthalein resulted as follows:

Tablets from packages labeled "The Citrolax Company of America" averaged 10 gm. in weight and contained an average of 2.4 per cent. phenolphthalein, or about 0.24 gm. per tablet.

Tablets from packages labeled "Foley and Co., Chicago" weighed about 11 gm. each and contained an average of 2.1 per cent. of phenolphthalein, or about 0.231 gm. per tablet.

The advertisements, as has been mentioned, would lead one to believe that the tablets are a form of magnesium citrate. The chemical examination shows that each tablet contains 3½ grains of phenolphthalein, or more than an average dose of this drug.

PRINTERS' INK AGREES

A few weeks ago we published a letter written from the advertising department of *Lippincott's Magazine* in reply to a protest made by a physician against some of the advertising carried by that publication. The opinions expressed by THE JOURNAL seem to be shared by that always interesting little "journal for advertisers," *Printers' Ink*, which in its "Little Schoolmaster's Classroom" department for February 26 says:

"THE JOURNAL of the American Medical Association publishes a letter from a very high-grade publication in which the latter asserts that it dare not refuse to run doubtful advertising, because the advertiser may sue it for damages. The Schoolmaster is surprised to find that the idea still persists that publications are, in some sense, common carriers. No publisher is obliged to accept any advertising at all (some of them don't), and every publication has the simple, common-law right to do business with whom it pleases. Of course that does not include the right to make indiscriminate accusations of fraud, but it isn't necessary to make any accusations at all in order to refuse business. The simple statement that 'we do not care to accept it' is enough."

UNITED DOCTORS—A NEWS ITEM

"A constable sale of the personal effects of the United Doctors who maintained offices for a time in the Montgomery Block, corner of Second Street and Western Avenue, took place this morning under the direction of Constable William Nelson. The sale was to satisfy a claim of $150 for rent which Mrs. Fannie T. Montgomery had against the physicians."—Muskegon (Mich.) *Chronicle*.

The preceding item would have a familiar sound to landlords, newspapers and others in various towns where the United Doctors formerly held forth, as in Springfield, Marion and Newark, Ohio. Among the great "Specialists" who supplied the Muskegon office of the United Doctors during its brief career were A. E. Weed, Harold K. Bryant and Samuel Cushing Beach; the last-mentioned was formerly of the Port Huron, Mich., office, whose history is set forth in the pamphlet[1] on "Quacks, Itinerant and Otherwise."

THOXOS

Thoxos is a "specialty" of John Wyeth and Brother. From an advertising circular we learn that it "offers to the physician a rational treatment for Rheumatism, both the Subacute and Chronic forms, Lithemia, Rheumatic Arthritis, Gout, Sciatica and the various manifestations of uric diathesis," and that "It is a palatable solution of Strontium and Lithium soluble salts, thirty-two grains, combined with twenty-four minims Wine of Colchicum Seed and a vegetable alterative, in each fluidounce, flavored with aromatics." This "formula" does not indicate the acid with which the metals strontium and lithium are combined, or what the "vegetable alterative" is; it is essentially a secret preparation. To learn what the missing and presumably active ingredients are an analysis was made by our chemists.

LABORATORY REPORT

One original bottle of Thoxos, John Wyeth and Brother, Philadelphia, was purchased and submitted to analysis. The bottle contained a brown liquid having an aromatic odor and a sweet taste. The specific gravity of the liquid was 1.118 at 15 C. (60 F.). The solution was acid to litmus. Qualitatively the following constituents were detected: strontium, potassium, sodium, lithium, ammonium, salicylate, iodid, glycerin, alkaloid, alcohol and water. By the smell and taste, oil of wintergreen, or methyl salicylate, and oil of sassafras were recognized. Positive tests for a saponin-like body indicated the probable presence of sarsaparilla.

Quantitatively the following results were obtained:

Ammonia (NH_3)	0.006	per cent.
Lithium (Li)	0.04	per cent.
Potassium (K)	0.13	per cent.
Sodium (Na)	0.03	per cent.
Strontium (Sr.)	1.03	per cent.
Iodid (I)	0.46	per cent.
Salicylate (C_6H_4OHCOO)	4.19	per cent.
Glycerin	19.2	per cent.

From the analytic results it would appear that the preparation contains approximately potassium iodid, 0.67 gm. per hundred c.c., or 3 grains per fluidounce, lithium salicylate [$Li(C_7H_5O_3)$], 0.9 gm. per hundred c.c., or 4 grains per fluidounce, strontium salicylate [$Sr(C_7H_5O_3)_2.2H_2O$], 5.75 gm. per hundred c.c., or 26 grains per fluidounce, and some salicylic acid combined with sodium and also in the free state. The total salicylate found is equal to 5.47 gm. of sodium salicylate per hundred c.c., or 25 grains per fluidounce.

As strontium salicylate and lithium salicylate are now generally considered to differ but slightly, if at all, in their action from that of sodium salicylate, each dose of Thoxos, 1 teaspoonful or 4 c.c., may be considered the equivalent of 0.2 gm. or 3 grains of sodium salicylate with a fractional

1. Price, 4 cents.

dose of colchicum. Hence this nostrum — for this is the correct definition—is a mixture of no more value than a prescription of sodium salicylate with a fractional dose of potassium iodid and colchicum; one that any doctor could write and any druggist dispense. Yet it is doubtless prescribed by physicians under the belief that it possesses some occult power not to be found in ordinary drugs and their combinations. To prescribe Thoxos is to prescribe a name, and the patient who takes it would be as well off if he went to the nearest drug store and purchased a bottle of any of the thousand and one rheumatism cures with which the country is flooded.

Correspondence

A National Medical Examining Board

To the Editor:—I should like to make a few suggestions on the question of a national medical examining board, the establishment of which was proposed recently by Lieutenant-Colonel Kean before the Federation of State Medical Examining Boards (The Journal, March 7, 1914, p. 804). The holding of the license of the national board should be made obligatory in the future on those seeking commissions in the Medical Corps and the Medical Reserve Corps of the U. S. Army and of the U. S. Navy and in the U. S. Public Health Service, and should be required of all who wish to hold any other medical position under the federal government. The license should also qualify the holder to the right to practice in the District of Columbia, the territories, insular possessions and all other places under the exclusive jurisdiction of the federal government. No doubt in a short time the majority of the states would register a medical man who held such a license.

H. M. Manning, M.D., Washington, D. C.,
Passed Assistant Surgeon, U. S. Public Health Service.

Baiting the Doctor?

To the Editor:—During the past week, a number of physicians of Monmouth have been visited by a man giving the name of N. P. James and claiming to live in Chicago. He gave a different story at each office visited. For example, he told me that he would be married in Chicago this week, but owing to the fact that his prospective father-in-law was a "eugenics crank" it was necessary that he present a clean bill of health before marrying the daughter. He claims to be a traveling salesman, and having a few hours to kill here decided to have the examination here. I made a careful examination of the prostatic secretions, staining for the Neisser coccus, and also making a microscopic urinalysis, staining the sediment obtained by centrifugation, and received a negative result in each instance. I told him that this would not prove the entire absence of either syphilis or gonorrhea, advised him to read the book "Damaged Goods," and told him, further, what I thought of a man who would intentionally deceive an innocent girl through a medical report, as it was not always possible by such examinations to tell positively the presence or entire absence of venereal diseases. I told him of the Wassermann test for syphilis, and the complement-fixation test, and advised him to have those tests made if he suspected disease. He informed me that he had never had any venereal diseases whatsoever. On paying my charges he asked for a receipt and also a statement regarding my examinations, and the results obtained. This I gave, stating the nature of the examinations, but did not say he was free from disease.

The same day he visited another physician here, saying that he had had a gonorrheal infection with considerable burning and asked the physician to prescribe for the burning particularly. This was done, and on paying the bill, he asked for a receipt.

To another physician he told the eugenic story and asked for an examination. This physician told him he did not believe it was possible for him to say positively whether there was anything of a venereal nature present, for it was not easy in the absence of the blood-tests to tell if a man had such conditions. He gave some advice and also gave a receipt for the amount paid. To another physician, "Mr. James" asked for gonorrheal treatment, giving a few of the usual symptoms, and again asked for a receipt.

I do not know how many similar calls he has made or, on the other hand, the object; but I can readily imagine that the recent exposure of quacks has something to do with his visits, and as others may have had similar visits, or will have them, I thought it advisable to write to you, as the story may be interesting to others.

H. M. Camp, M.D., Monmouth, Ill.

[Comment.—This letter is one of several that we have received. See The Journal, March 14, 1914, p. 862, and Feb. 28, 1914, p. 716.—Ed.]

Ninhydrin Reaction of Urine

To the Editor:—I wish to refer to the article on "Presence of Dialyzable Products Reacting to Abderhalden's Ninhydrin in the Urine of Pregnant Women," by Louis M. Warfield (The Journal, Feb. 7, 1914, p. 436).

It is quite evident that serious mistakes have been made by the author, as it has long been known by all students of urinalysis that the urine contains amino-acids, which are generally grouped with other substances as "undetermined nitrogen" when speaking of the nitrogenous contents of the urine. These amino-acids may arise from dietetic causes or from processes of catabolism, normal or perverted.

A number of months ago I made a series of experiments on the reaction on urine from various sources with ninhydrin and found that a positive reaction was the rule. It made no difference whether the urine was from a case of pregnancy or from a non-pregnant female or from a male individual. It is true that in a few cases a negative reaction with ninhydrin is obtained, but this does not prove the absence of amino-acids. The ninhydrin reaction is easily influenced by the presence of other substances in solution, and we attribute our failure to obtain the reaction in some cases more to the fact that substances inhibiting a positive test were present in the urine than to the absence of amino-acids.

In the accompanying table are given the results of tests of a few urines, all from male individuals, which according to Warfield, would indicate pregnancy.

TESTS OF URINE WITH NINHYDRIN

No.	Time After Meal Hrs.	Reaction	Specific Gravity	Albumin	Peptone	Ninhydrin Reaction Of Centrifuged Urine	Ninhydrin Reaction Of Dialysate
1	4	Acid	1.025	—	—	+	+
2	*	Acid	1.015	—	—	+	+
3	4	Alk †	1.019	—	—	+	+
4	5	Acid	1.031	+‡	—	+	+
5	1	Acid	1.025	—	—	+	+

* Immediately after meal.
† Carbonates and phosphates present on voiding; reaction more of pinkish cast.
‡ Case of orthostatic albuminuria.

It will be noticed that the alkalinity of Urine 3 interfered with the reaction to some extent, but did not entirely obliterate it. I have found cases in which the reaction was entirely obliterated, because of ingestion of certain drugs.

If proteins are absent from the urine, it is not necessary to use a dialyzer to demonstrate the presence of dialyzable substances reacting with ninhydrin, as the smaller fragments of the protein molecule which react with ninhydrin are all dialyzable.

I would urge that great care be used in making tests and reporting results with the Abderhalden technic. Much confusion has already resulted from incorrect or insufficiently controlled work. In research so far, I have found that the ninhydrin test is quite reliable for pregnancy diagnoses and promises to be of value for the diagnosis of carcinoma, provided a homologous substrate is used in making the tests, and that it is of promise in the investigation of insanity.

Charles E. M. Fischer, M.D., Chicago.

Priority in the Adoption of Higher Entrance Requirements

To the Editor:—In Dean R. H. Whitehead's article (THE JOURNAL, March 14, 1914, p. 826), the following statement is made:

"When, in 1906, the faculty of the school which I serve [the University of Virginia] decided to require thereafter a year of college work in the basic sciences preliminary to medicine, there was not a school in the entire East between Canada and Mexico, with the exception of Harvard and Johns Hopkins, which required any amount of college work for admission."

This is quite true of the extreme East, but it might have been added that while Johns Hopkins has required a collegiate degree since 1893 and Harvard since 1900, Western Reserve has required three years of a college course since 1901, the University of Chicago two years since 1904, and the University of California has made the same requirement since 1905, while the University of Minnesota has required one year since 1902 and two years since 1907. In view of the splendid work done by the Carnegie Foundation and the Council on Education of the A. M. A., we are apt to forget the sacrifices by the above-named six institutions, which made the subsequent work for educational reform possible.

W. W. ROOT, M.D., Slaterville Springs, N. Y.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

IODIN TREATMENT OF GOITER

To the Editor:—1. Is the iodin treatment for goiter considered successful, and if so, to what extent?
2. How is it best given and how often?
3. Where can I obtain literature on it?

F. M. POSTLETHWAITE, M.D., Glen Elder, Kan.

ANSWER.—1. Iodin is a recognized treatment in certain forms of goiter. As a rule it is contra-indicated in exophthalmic goiter and in old goiters of the fibroid and colloid varieties. The cases in which it may be useful are often best determined by a cautious trial. If, after using it for one or two weeks, no improvement is noted, the case is probably one to which the remedy is not suited.

2. It is best given in the form of iodid internally. The doses should be small to begin with and can be cautiously increased. Too large doses may cause the development of exophthalmic goiter. It may be given three times daily.

3. Late text-books on pharmacology and on medicine should be consulted. The following are recent articles on the subject:

Marine, D.: Anatomic and Physiologic Effects of Iodin on the Thyroid of Exophthalmic Goiter, THE JOURNAL, Aug. 3, 1912, p. 325.
Pulawski, A.: Iodin and Thyroid Extract as Factors in Exophthalmic Goiter, *Med. Klin.*, 1912, viii, 1181; abstr., THE JOURNAL, Sept. 21, 1912, p. 975.

ARTICLES ON MUNICIPAL HEALTH

To the Editor:—Please give references to articles on the subject of preventable diseases from the point of view of city sanitation, to be used in preparing a paper for delivery before our mayor and city council. O. S. JACQUITH, M.D., Lawrenceburg, Ind.

ANSWER.—Following is a list of references to literature on this subject:

Lumsden, L. L.: What the Mayor and City Council Can Do in the Prevention of Typhoid Fever, reprint from *Pub. Health Rep.*, June 17, 1910.
Bennett, H. C.: Cleaning Up the American City: How Mrs. Caroline Crane Does It, *American Magazine*, September, 1913.
Smoking on Street-Cars, Current Comment, THE JOURNAL, Feb. 14, 1913, p. 544.
Lewinski-Corwin, H., and Mayo, E. W.: The Control of Disease, *Outlook*, Sept. 6, 1913.
Dutton, W. F.: Sanitary Control of Public Eating- and Drinking-Places: Its Regulation by Law, *Scient. Am. Supplement*, Dec. 28, 1912.
Harrington, Thomas F.: Prevention of Disease versus Cost of Living, THE JOURNAL, June 7, 1913, p. 1757.
Thompson, Cyrus: Waste, *North Carolina State Board of Health Bulletin*, April, 1912.
Stimson, A. M.: The Citizen and the Public Health, Supplement No. 4, *Pub. Health Rep.*, Feb. 28, 1913.
Lederle, E. J.: Sanitary Control of Local Milk-Supplies Through Local Official Agencies, *Med. Rec.*, New York, Dec. 14, 1912.
Riddle, J.: Public Housekeeping With Reference to Sanitation, *Wisconsin Med. Jour.*, January, 1913.
O'Farrell, J. M.: Public Health is Public Wealth, *Texas State Jour. Med.*, February, 1913.
Menefee, A. V.: What a Busy Practitioner Can Do to Educate Public in Prevention of Disease, *Kentucky Med Jour.*, Oct. 15, 1913.
Kiefer, Guy L.: Progress in Public Health Work, THE JOURNAL, Nov. 8, 1913, p. 1680.
A City's Investigation of Its Public Health, Medical Economics, THE JOURNAL, Nov. 29, 1913, p. 2004.
Palmer, G. T.: Diagnosis of Sick City, *Am. Jour. Pub. Health*, July, 1913.
Eggleston, W.: Sanitation in Small Towns, *Old Dominion Jour. Med. and Surg.*, July, 1913.
Porter, S. D.: Legislation, State and Local: What It May Accomplish for Sanitation, *New Orleans Med. and Surg. Jour.*, August, 1913.

ADMINISTRATION OF CALCIUM

To the Editor:—If calcium is needed in the body it is usually due to the fact that calcium has been taken from it. Lactic acid is the chief agent in removing lime from the body. It is produced by bacterial agency or effect on inosite, glucose and other sugars as well as in the ordinary metabolism of glucose. Lactic acid will extract lime from tendons and ligaments, causing them to become swollen, and also from the nuclei of cells, causing their destruction. Therefore, it would seem that to administer calcium in the form of lactate would not be good practice. I have found that an admirable way of administering calcium is to give calcium salicylate in 10-grain doses in carbonated water.

T. W. JENKINS, M.D., Albany, N. Y.

ANSWER.—It does not seem probable that the objection, made by our correspondent, would apply in the case of lactate of calcium administered as a remedy. The absorption or solution of calcium in the body is probably brought about in a medium that is slightly acid. The lactate of calcium, however, is a neutral salt which could have no influence in rendering other forms of calcium soluble. From what we know of metabolic processes, it is probable that calcium lactate undergoes oxidation with the production of calcium carbonate. It is denied by some investigators that the administration of lactic acid will affect the amount of calcium in the bones. Experimental investigation has shown that the bones may become softened by the ingestion of dilute sulphuric acid, which would seem to indicate that the effect is due to the permanence and strength of the acid reaction rather than to the particular acid used. Calcium salicylate would give active effects of salicylic acid, which might be undesirable.

BOOKS ON ALKALOIDS AND GLUCOSIDS

To the Editor:—Please give me reference to literature on the chemical properties, separation and analysis of the alkaloids and glucosids. A text-book on this subject would be very welcome, if I knew of one.

E. A. PETERSON, M.D., Mobile, Ala.

ANSWER.—In general, information in regard to the properties, separation and estimation of alkaloids is scattered through rather recent current literature. Perhaps the best single book to use is A. H. Allen's "Commercial Organic Analysis," Vol. vii, Philadelphia, P. Blakiston's Son & Co., 1913. A short discussion of the method of estimating alkaloids is represented by Korczynski, "Die Methoden der exakten quantitativen Bestimmung der Alkaloide," Berlin, Verlag Gebrüder Borntraeger, 1913. A book written by A. B. Lyons, Detroit, on the estimation of alkaloid was a standard work some years ago, but we cannot give its publishers.

STATUS OF RADIUM

To the Editor:—I have recently received several circulars from the Radium Chemical Company, Forbes and Meyran avenues, Pittsburgh, Pa., which seems to be introducing radium drinking-water, radium bath-water, radio-active earth for external applications, radium compresses, and radium in ampules for intravenous injection.

The company and its methods are new to me and I should be glad if you have any information on the subject to give to the profession, especially in regard to the efficacy of radio-active water and radium baths, of which the newspapers are saying so much of late and which I find are being adopted by some members of the profession.

WILLIAM H. VAN DEN BURG, M.D., New York.

ANSWER.—Radium is still on trial in all its forms. Water containing radium emanations is presumably radio-active and may produce the milder effects of radium on the animal organism; but it must still be held as undemonstrated that these effects are of value in the treatment of constitutional diseases. While some clinical evidence has been introduced

to show a favorable effect from these preparations, the interpretation of such evidence is always beset with difficulties; it is hard to separate the improvement which arises from psychic influences from that which rests on an objective basis.

It is notable that the conditions in which radium emanations are used, such as rheumatism, are liable to psychic impressions and are readily influenced by new forms of treatment which later lose their beneficial influence.

TRAINING OF LEFT-HANDED CHILDREN

To the Editor:—Is it wise to attempt to change left-handed children to right-handed ones?

FRANK W. MORSE, M.D., Canton, Maine.

ANSWER.—Left-handedness appears to be hereditary in a large proportion of cases, and it does not seem wise to attempt to change the condition. According to Dr. Schäfer, who investigated left-handedness among the Berlin schoolchildren, heredity was recognizable in 60 per cent. Consequently over 9,000 children are being trained contrary to their natural inclination, and this to their detriment as is shown by their writing, drawing and handwork. In his opinion, the left hand should not be left untrained in left-handed children but should be held as of the same importance in education as the right hand among the right-handed. (See Berlin Letter, THE JOURNAL, Oct. 26, p. 1554.) Other references are:

Voelckel, E.: Right-Handedness in Infants, *Ztschr. f. Kinderh.*, 1913, viii, No. 4; abstr., THE JOURNAL, Sept. 27, 1913, p. 1083.
Brüning, A.: Test for Left-Handedness, *M ünchen .med. Wchnschr.*, Dec. 5, 1911.
Left-Handedness in the German Army, Berlin Letter, THE JOURNAL, June 15, 1912, p. 1869.

MANUFACTURE OF NITROGEN

To the Editor:—1. Please give correct proportions for producing nitrogen by the action of potassium hydroxid and pyrogallic acid on air.

2. Is there any guide as to when the solution has become untrustworthy?

3. Some authorities state that strong solutions in the presence of oxygen may evolve carbon monoxid. Is this true?

4. Where can one obtain pure nitrogen in bombs or containers for use in Murphy's method of artificial pneumothorax?

J. L. POMEROY, M.D., Monrovia, Cal.

ANSWER.—1. Five gm. of pyrogallol are dissolved in 15 c.c. of water, and 120 gm. of potassium hydroxid are dissolved in 80 c.c. of water. The two solutions are kept separate and mixed immediately before use. If the mixed solution is not used at once it must be kept out of contact with the air. This quantity of solution will dissolve about 1 liter of oxygen or will dissolve the oxygen from about 4 to 5 liters of air.

2. There is no way of determining when the solution has become ineffective except to test for oxygen in the treated gases. The most satisfactory method is to prepare only as much of the alkaline pyrogallol solution as is needed for one absorption, and discard it after use.

3. It is stated that solutions of the strength given above do not produce carbon monoxid, as the large excess of potassium hydroxid is said to prevent the formation of this substance. Because of the high cost of the materials this method is not used for the commercial production of nitrogen.

4. Nitrogen gas in containers may be obtained of the Chicago Oxygen Gas Company, 1742 West Madison Street, Chicago, from the Linde Air Products Company, Forty-Second Street Building, New York City, and elsewhere.

ARTICLES ON THE CRUSADE AGAINST THE HOUSE-FLY

To the Editor:—Please give a list of articles and pamphlets on the crusade against the house-fly, particularly the efficient means of abating the fly menace.

G. H. HANSEL, M.D., Rising Sun, Ind.

ANSWER.—Following is a list of articles dealing with this subject:

Howard, L. O.: The House-Fly: Disease Carrier, F. A. Stokes Company, New York, 1911 (excellent bibliography).
Doane, R. W.: Insects and Disease, Henry Holt & Co., New York, 1910.
Mitchell, E. G.: Mosquito Life, G. P. Putnam's Sons, New York, 1907.
Ross, H. H.: Reduction of Domestic Flies, Philadelphia, J. B. Lippincott Company, 1913. Price, $1.50.
The House-Fly, Alabama State Board of Health, Special Bull., January, 1913.
Thomson, F. N.: House-Fly as a Carrier of Typhoid Infection, *Jour. Trop. Med.*, Sept. 16, 1912.
Hodge, C. F.: How You Can Make Your Home Town or City Flyless, *Nature Culture*, 4 West Seventh Street, Cincinnati.
Stockbridge, Frank P.: How to Get Rid of Flies, *World's Work*, April, 1912.
Hatch, Edward, Jr.: The House-Fly as a Carrier of Disease, Fly-Fighting Committee of the American Civic Association, New York.
House-Fly, Circular 71, U. S. Department of Agriculture, Bureau of Entomology.
The House-Fly, Publication 77, Florida State Board of Health.
"House-Fly Number," *Bull. Texas State Board of Health*, March, 1912.
Fly Destruction and Prevention, Queries and Minor Notes, THE JOURNAL, Oct. 19, 1912, p. 1473.
Literature on Flies, Queries and Minor Notes, THE JOURNAL, June 24, 1911, p. 1900.
Breeding-Places for Flies as Nuisances, Queries and Minor Notes, THE JOURNAL, Sept. 22, 1911, p. 1076.
Howard, L. O.: How Insects Affect Health in Rural Districts, Farmer's Bull. 155, U. S. Department of Agriculture, 1908.
Crusade Against the House-Fly, *Scient. Am.*, Dec. 9, 1911, p. 547.
Vassilivitch, C.: New Light on Some Old Criminals, *Harper's Weekly*, Dec. 30, 1911, p. 55.
The House-Fly at the Bar, etc., Merchants' Association, New York, April, 1909.
The House-Fly, Bull. 7, Illinois State Board of Health Bull., September, 1911.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POST-GRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

A REFERENDUM VOTE ON ESSENTIAL LAWS

The Council on Health and Public Instruction has inaugurated a medicolegal bureau for the study of public health legislation and the preparation of standard laws on the most important subjects. The need of carefully prepared model laws on health topics has long been recognized. The value of such standards in securing uniform laws in the different states is well illustrated by the model law on vital statistics drafted eight years ago by the Committee on Uniform Vital Statistics Legislation appointed by the Committee on Legislation of the American Medical Association. This model bill has been revised a number of times. It has been endorsed by all of the leading public health organizations in the country, as well as by such bodies as the American Bar Association, the commissioners on uniform laws, the American Federation of Labor, and the General Federation of Women's Clubs. The same plan which was followed in drafting this law can be carried out to advantage in regard to any of the other important subjects of public health legislation.

When this work is taken up as a practical measure, however, a number of problems arise. One of the first and most important is, What are the essential subjects on which a state should legislate in order to protect its citizens against disease? When the laws of the different states are collected, systematically arranged and examined, it is found that legislation has been enacted on a large number of topics. Many of these laws were passed without careful consideration of their relation to the general subject. Many special laws have been enacted which might better have been included under general legislation. Even when allowance is made for the variation in title and subject in the different states, there are still forty-seven specific subjects relating to public health on which laws have been enacted. Obviously, out of this large number a few are essential and the majority are incidental and secondary.

The first question to be determined, therefore, is, What are the essential subjects for legislation? If a state were to be organized *de novo*, and if all of our present-day knowledge of disease prevention were utilized, what laws should the new state pass in order to take advantage of all the existing knowledge for the protection of the public health? Obviously, the reply to such a question depends largely on the knowledge, the experience and the point of view of the individual. Obviously, too, no one person is wise enough and broad enough in his point of view to answer such a question authoritatively.

A reply to this question may be found in the average of a large number of opinions representing all possible interests and classes.

In order to secure such a composite opinion a list was recently prepared containing approximately one thousand names, as follows:

Governors of states	52
Chief justices of supreme courts	49
Officers of the American Bar and State Bar associations	53
Commissioners on uniform laws	164
Officers and members of standing committees of the American Medical Association	50
Presidents of state medical societies	51
Secretaries of state medical societies	51
Members of the National Legislative Committee	51
Secretaries of state boards of health	49
Secretaries of state licensing boards	40
Officers of the General Federation of Women's Clubs and of state federations	127
State superintendents of education	48
Officers of national organizations interested in public health	30
Presidents of colleges and universities	124
Deans and secretaries of medical colleges	132
	1,071

This list comprises 1,071 names; 424 are names of physicians and 647 of non-medical men and women. A circular letter was sent to each person on the list. With the letter was enclosed a return postal card on which was printed the list of subjects of public health laws on which the various states had adopted legislation. These subjects were arranged alphabetically. Each person to whom the card was sent was asked to indicate thereon the ten subjects which he considered the most important subjects for legislation. The return card was to be mailed to the Secretary of the Council on Health and Public Instruction of the American Medical Association.

Out of 1,071 persons to whom this letter and card was sent, 600, or 56 per cent., replied. Three hundred and thirteen, or 48 per cent., of the non-medical correspondents, and 287, or 67 per cent., of the medical correspondents, replied. The largest percentage of replies (86 per cent.) came from secretaries of state medical societies, the smallest (40 per cent.) from judges of state supreme courts. Sixty-eight per cent. of state superintendents of education and 70 per cent. of officers of national organizations replied.

When the cards were tabulated the following results were secured:

Antispitting	141
Barber-shop inspection	44
Board of health	204
Cancer-research hospital	116
Contagious diseases	313
Regulation of dentistry	23
Common drinking-cup	121
Emtalmers	15
State care of epileptics	82
Expert witnesses	103
Factory inspection	144
Care of feeble-minded	148
First aid in factories	34
Food and drugs	304
Garbage disposal	146
Habit-forming drugs	216
Hotel inspection	46
Care of insane	133
Leprosy	9
Live-stock sanitary laws	38
Health inspection of schools	389
Medical practice act	180
Midwifery	81
Milk and dairy laws	366
Mosquitoes	152
Nurses and nursing	27
Occupational diseases	98
Ophthalmia neonatorum	103
Optometry	21
Osteopathy	19
Pharmacy	17
Poliomyelitis	29
Public health	233
Quarantine	63
Rabies	18
Reporting venereal diseases	272
Railroad sanitation	67
Sterilization of criminals	184
Tenement-house inspection	121
Common towels	38
Tuberculosis	407
Tuberculosis in cattle	73
Vaccination	134
Vital statistics	226
Water and sewerage	373
Workmen's compensation act	104
Regulation of marriage	2
Infant mortality reduction	2
Antidust	1

Arranging the ten subjects which received the largest number of votes in order, the following result is secured:

Tuberculosis	407
Health inspection of schools	389
Water and sewerage	373
Milk and dairy	366
Contagious diseases	313
Food and drugs	304
Reporting venereal diseases	272
Public health	233
Vital statistics	226
Habit-forming drugs	216
Board of health	204

Besides offering an opportunity for an expression of opinion on the part of a large number of persons in positions of influence and experience, a number of interesting facts become apparent on general study of the tabulation. The high standing of tuberculosis is unquestionably due to the enormous amount of public education on this subject which has been carried on for years past. The expression regarding the importance of medical school inspection is gratifying. If 389, or nearly 40 per cent., of those on the list feel that this is the second most important subject for legislation, it ought not to be difficult to convince the rest of the public of the importance of such laws. Legislation on water and sewerage, milk- and dairy-supplies, food and drugs, naturally appeal to the majority of people. The fact that legislation requiring the reporting of venereal diseases was given seventh place is probably due to the increased discussion on this subject which has appeared in the last few years.

Many other interesting facts appear. For instance, twenty-four out of sixty-one officers of the General Federation of Women's Clubs consider antispitting laws of importance, while only three governors, two chief justices and three officers of the American Medical Association consider this subject worthy of legislation. On the other hand, twenty-one presidents of colleges out of the fifty-six who replied consider it of importance. The expression of opinion regarding a board of health act is interesting. Twelve governors out of twenty-four, six chief justices out of twenty, twenty-three commissioners of uniform laws out of seventy-eight, twenty secretaries of state societies, twenty members of the National Legislative Committee and twenty-four deans and secretaries of medical colleges regard this subject of the first importance. The vote on medical inspection of schools was as follows:

Governors	13
Chief justices	11
Officers of the American Bar Association and State Bar associations	11
Commissioners of uniform laws	43
Officers of the American Medical Association	18
Presidents of state societies	23
Secretaries of state societies	33
Members of the National Legislative Committee	32
Secretaries of state boards of health	23
Secretaries of state licensing boards	12
Officers of General Federation of Women's Clubs	35
State superintendents of education	27
Officers of national organizations	15
Presidents of colleges and universities	40
Deans and secretaries of medical colleges	53

As thirty-two superintendents of education voted, and twenty-seven of them voted for health inspection of schools, this indicates that 87 per cent. of the state superintendents of education are in favor of such a measure.

The opinion held regarding sectarian practice acts is evidently not very favorable, as only twenty-one persons regarded optometry laws as important, and only nineteen regarded osteopathy laws as necessary. A peculiar fact is that practically all of these votes were cast by the medical part of the list, the non-medical voters not regarding these subjects as of sufficient importance to include them in their vote. The expression of opinion regarding medical practice acts shows a wide divergence of opinion. This subject is included on their list of the ten most important matters for state legislation by 5 governors, no chief justices, 9 officers of the American Bar Association, 17 commissioners on uniform laws, 17 officers of the American Medical Association, 17 presidents of state medical societies, 22 secretaries of state societies, 14 members of the National Legislative Committee, 9 secretaries of state

boards of health, 16 secretaries of state licensing boards, 5 officers of the General Federation of Women's Clubs, 2 state superintendents of education, 3 officers of national organizations, 15 presidents of colleges, and 29 deans and secretaries of medical colleges. The large number of medical college officers who held this opinion would indicate that the regulation of the practice of medicine is and should be regarded as an educational and not as a sectarian problem.

When the subject is considered analytically rather than from the point of view of the opinions expressed by the six hundred who voted, it will probably be agreed by most of those interested that many of the subjects of special legislation could well be included under broad general laws. Specific legislation on each special health topic is unnecessary. If a law creating a state board of health is properly drafted, provision can be made for including under the general powers of the board many of the subjects now regulated by special legislation. For instance, antispitting, barber-shop inspection, contagious diseases, suppression of the common drinking-cup, factory inspection, garbage disposal, hotel inspection, suppression of mosquitoes, prevention of occupational diseases, ophthalmia neonatorum, poliomyelitis, regulation of quarantine, prevention of rabies, reporting of venereal diseases, railway sanitation, control of tenements and lodging-houses, suppression of tuberculosis, regulation of vaccination, and regulation and compilation of vital statistics can all be brought under the scope of a general state board of health act. The logical order for the consideration of public health legislation would be something like the following:

1. Board of health acts.
2. Vital statistics law, if not included in 1.
3. Law authorizing sanitary survey of the state and making appropriation for it.
4. Practice act, including the regulation of midwives and of all sects treating the sick for compensation.
5. Law establishing county and city health organizations with definite relation to each other and to the state board.
6. Food and drugs act.
7. Act regulating water, sewerage and waste disposal.
8. Milk and dairy laws.
9. Sanitary and health inspection of schools.
10. Housing law, or law for the control of industrial diseases.

The exact order of these topics would naturally be subject to modification according to the views of the individual. Probably the relative importance of the last three or four topics would also be open to discussion. As for the first six, however, their importance seems apparent. A board of health must be created or a responsible health officer of the state appointed before anything else can be done. After the health machinery of the state is completed, the first and most important thing to find out is what diseases are killing the people in the state and how many births, deaths and marriages are occurring. This law should also provide for the reporting of such diseases as may seem advisable. The next most important work is the sanitary survey of the state, with a view to determining the causes of sickness and how they can be removed. Definite laws creating, or at least authorizing, city and county health organizations are of the first importance after the state health machinery has been established. It is also desirable that such local organizations should have a definite relation to each other and to the state board.

The opinions expressed by those who responded indicate a growing opinion on the part of the non-medical public of the importance of proper laws and regulations for the protection of the public health. The fact that 50 per cent. of the non-medical persons on the list, all of them busy men and women, responded, indicates a marked degree of interest in the subject. So far as is known, this mode of securing public opinion has never before been tried. It is planned to retain this mailing list of one thousand persons in official positions and to send to each person provisional drafts of model laws on the most important subjects with a view to obtaining their criticisms and suggestions, in order that the model laws when completed may represent as wide a point of view as possible.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARIZONA: Phoenix, April 7. Sec., Dr. John Wix Thomas, Phoenix.
COLORADO: Denver, April 7. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.
IDAHO: Wallace, April 7. Sec., Dr. John F. Schmershall, Jerome.
MINNESOTA: Minneapolis, April 7-10. Sec., Dr. Thomas McDavitt, 814 Lowry Bldg., St. Paul.
MONTANA: Helena, April 7. Sec., Dr. Wm. C. Riddell, Helena.
NEW MEXICO: Santa Fe, April 13. Sec., Dr. W. E. Kaser, East Las Vegas.
OKLAHOMA: Oklahoma City, April 14. Sec., Dr. John W. Duke, Guthrie.
RHODE ISLAND: Providence, April 2. Sec., Dr. Gardner T. Swarts, Room 315, State House, Providence.
UTAH: Salt Lake City, April 6-7. Sec., Dr. G. F. Harding, 403 Templeton Bldg., Salt Lake City.
WEST VIRGINIA: Charleston, April 21. Sec., Dr. S. L. Jepson, 81-12th St., Wheeling.

Massachusetts July Report

Dr. Walter P. Bowers, secretary of the Massachusetts Board of Registration in Medicine, reports the oral, practical and written examination held at Boston, July 8-10, 1913. The number of subjects examined in was 13; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 137, including non-graduates, of whom 94 passed, including 6 non-graduates, 2 osteopaths, and 43 failed, including 11 non-graduates and 7 osteopaths. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
George Washington University	(1911)	75
Georgetown University	(1913)	80.3
Medical School of Maine	(1913)	77.9
College of Physicians and Surgeons, Baltimore	(1913)	80
Johns Hopkins University	(1913)	83
University of Maryland	(1907)	77
Boston University (1913) 75.4, 77, 80, 82.2, 83.2, 87.2.		
Harvard Medical School (1884) 80; (1911) 77.9, 80.4; (1912) 75, 75, 76.5, 77.2; (1913) 75, 75, 75.7, 76.4, 76.5, 76.9, 77.5, 77.8, 78.3, 79.7, 80, 80.5, 80.6, 80.8, 81.5.		
Tufts College Medical School (1912) 75, 76.2; (1913) 75, 75, 75, 75, 75, 75, 75.3, 75.8, 75.2, 77.4, 77.5, 77.6, 77.6, 77.7, 77.8, 78.2, 78.4, 78.5, 78.6, 78.7, 79.1, 79.2, 79.2, 79.4, 79.5, 79.9, 80, 80.1, 80.4, 80.4, 80.8, 81.5, 81.7, 81.8, 82.5, 82.5, 83.2.		
Dartmouth Medical School	(1912) 78.5; (1913)	75
Cornell University	(1909)	83
New York Homeopathic Med. College and Hosp.	(1913)	81.2
New York Medical Coll. and Hosp. for Women	(1913)	79.5
University of Buffalo	(1912)	79.7
Women's Medical College of Pennsylvania	(1913)	78.3
University of Vermont (1909) 77.1; (1912) 75.2;	(1913)	75.2
Queen's University, Ontario	(1912)	75
Royal College of Palermo, Italy	(1908)	76.1
Non-graduates, 75, 75, 75, 76.5, 79.4, 79.7.		

FAILED		
Atlanta School of Medicine	(1912)	68
University of Georgia	(1913)	71.5
Chicago College of Medicine and Surgery	(1913)	71.9
Medical School of Maine	(1913)	71.7
Baltimore Medical College	(1912)	71.2
Eastern University School of Medicine, Baltimore	(1913)	53*
Maryland Medical College	(1912) 65.8; (1913)	54.4
Boston University	(1913)	69.7
College of Physicians and Surgeons, Boston (1912) 72.6; (1913) 63.4, 66.		
Tufts College Medical School (1911) 63.2; (1913) 69.1, 70.5, 71.9, 72.		
Dartmouth Medical School	(1909)	69.9
Columbia Univ. Coll. of Phys. and Surgs., N. Y.	(1912)	72.2
Woman's Medical College of Pennsylvania	(1913)	71
University of Vermont	(1908) 69.5; (1912)	57.1
University of Naples, Italy	(1907)	65.7
University of Helsingfors, Russia	(1911)	54.4
University of St. Joseph, Beyrouth, Syria	(1912)	58.8
Non-graduates, 49.9, 51.5, 53.2, 55.6, 60.5, 65.2, 70.2, 70.7, 71.7, 72.4†.		

* A new Eclectic medical college reported not recognized by the Maryland Board of Medical Examiners.
† No grade given.

Massachusetts September Report

Dr. W. P. Bowers, secretary of the Massachusetts Board of Registration in Medicine, reports the written and practical examination held at Boston, Sept. 9-11, 1913. The number of subjects examined in was 11; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 67, including 7 osteopaths and 13 non-graduates, of whom 42 passed, including 5 osteopaths

and 2 non-graduates, and 25 failed, including 2 osteopaths and 10 non-graduates. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent.
Yale Medical School	(1911)	77.2
George Washington University	(1905)	75
Atlanta School of Medicine	(1912)	75
University of Georgia	(1913)	75.2
College of Physicians and Surgeons, Baltimore	(1913)	78.1
Boston University	(1913)	75
Harvard Medical School (1912) 81; (1913) 80.4, 81.5, 82.		
Tufts College Medical School (1911) 79.2, 82; (1912) 75.8, 76.8, 79.5; (1913) 75, 75.4, 75.6, 76.1, 77.2, 77.3, 78.5, 78.6, 78.7, 80.1, 80.9.		
Dartmouth Medical School	(1912)	75
Columbia Univ., Coll. of Phys. and Surgs., N. Y.	(1912)	76.7
University of Pennsylvania	(1906)	80
Woman's Medical College of Pennsylvania	(1913)	78.7
University of Vermont	(1908) 75.7; (1913)	76.8
Medical College of Virginia	(1912)	75
Royal University of Naples	(1908)	79.1
University of Helsingfors, Finland	(1911)	75
Non-graduates	75,	75.7

FAILED		
Coll. of Physicians and Surgeons, San Francisco	(1903)	67.2*
Eastern University, School of Medicine	(1913)	62.8
National Medical University, Chicago	(1909)	52.7
Maryland Medical College	(1913)	69.5
College of Physicians and Surgeons, Boston (1913) 61.7, 62.6, 65.5, 72.2.		
Tufts College Medical School (1913) 69.8, 69.9, 70.9.		
University of Vermont	(1912)	67.5
Royal University of Naples	(1907)	70
Non-graduates, 46.4, 57, 58.8, 62.2, 62.5, 70.2, 70.7, 71.2, 72.4, 72.6.		

* Name does not appear on published list of graduates of said college.

Massachusetts November Report

Dr. Walter P. Bowers, secretary of the Massachusetts Board of Registration in Medicine, reports the oral, practical and written examination held at Boston, Nov. 11-13, 1913. The number of subjects examined in was 13; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 70, including 20 non-graduates and 2 osteopaths, of whom 36 passed, including 2 non-graduates, and 34 failed, including 18 non-graduates and 2 osteopaths. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent.
George Washington University	(1912)	75
Medical School of Maine	(1903) 75; (1908)	81
Baltimore Medical College	(1912)	75
College of P. and S., Baltimore	(1901) 75; (1913)	78.1
Johns Hopkins University	(1910)	82.9
Harvard Medical School	(1912) 76; (1913) 79.2, 80, 82.7	
Tufts College Medical School (1912) 75.8, 78, 80.8; (1913) 79.1, 79.2		
Dartmouth Med. School (1906) 75; (1912) 78.7; (1913) 77,		81.4
Univ. and Bellevue Hosp. Med. Coll.	(1912) 79; (1913)	79.8
Jefferson Medical College	(1911)	78.6
Woman's Med. College of Pennsylvania	(1911) 75; (1913)	77
Univ. of Vermont	(1912) 75, 76.4, 80.4, 82.2; (1913)	78.9
Marquette University	(1913)	76.9
McGill University, Quebec	(1913)	77.6
Royal University of Parma, Italy	(1904)	78.7
University of Valladolid, Spain	(1903)	76.5
Non-graduates	76.4,	77.2

FAILED		
College of P. and S., San Francisco	(1903)	71.2*
Chicago College of Med. and Surgery	(1913)	68.3
Medical School of Maine	(1913)	71.8
Eastern University School of Medicine	(1913)	67
Maryland Medical College	(1912) 55.8, 69.7; (1913)	67.7
College of P. and S., Boston	(1913) 67.6, 68.9, 70.3	
Tufts College Med. School	(1911) 69.3; (1913) 72, 72.3, 72.8	
Non-graduates, 45.1, 46.9, 53, 55, 59.7, 61.6, 63.7, 65.4, 65.9, 69, 69.4, 70.7, 71, 71.5, 72.1, 72.2, 72.7, 73.		

* Name does not appear on published list of graduates of said college.

Kansas October Report

Dr. H. A. Dykes, secretary of the Kansas State Board of Medical Registration and Examination, reports the written examination held at Topeka, Oct. 14-16, 1913. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 12, of whom 9 passed and 3 failed. Eight candidates were licensed through reciprocity. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent.
Howard University	(1912) 75,7; (1913)	77
Rush Medical College	(1913) 79,	80
University of Illinois	(1912)	81
St. Louis University	(1913)	84
University Medical College, Kansas City	(1913)	75.8
John A. Creighton Medical College	(1913)	91.5
Syracuse University	(1875)	78

FAILED		
Hering Medical College	(1912)	74
University Medical College, Kansas City	(1913)	63
Meharry Medical College	(1913)	70

LICENSED THROUGH RECIPROCITY		
College	Year Grad.	Reciprocity with
Rush Medical College	(1912)	Illinois
University of Illinois	(1912)	Illinois
College of Phys. and Surgs., Kansas City, Kan.	(1898)	Missouri
American Medical College	(1883)	Missouri
Barnes Medical College	(1903)	Missouri
Ensworth Medical College	(1909)	Missouri
Washington University	(1907)	Missouri
University of Pennsylvania	(1907)	Penna.

Kentucky December Report

Dr. A. T. McCormack, secretary of the State Board of Health of Kentucky, reports the written examination held at Louisville, Dec. 11-13, 1913. The number of subjects examined in was 15; percentage required to pass, 70, and not less than 60 in any one branch. The total number of candidates examined was 28, including 1 osteopath, of whom 21 passed, including 1 osteopath, and 7 failed. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent.
Howard University	(1913) 78,	85
Hahnemann Medical Coll. and Hospital, Chicago	(1911)	86
University of Louisville (1911) 74, 80; (1912) 79; (1913) 71, 84, 85, 86, 88.		84
Tulane University	(1913)	88
St. Louis College of Physicians and Surgs.	(1913)	80
University and Bellevue Hosp. Medical College	(1911)	93
Jefferson Medical College	(1912) 90; (1913)	89
Lincoln Memorial University	(1913)	74
Meharry Medical College	(1913)	76
Vanderbilt University	(1910)	88

FAILED		
Louisville National Medical College (1912) 55, 60, 65, 65.		
University of Louisville	(1911)	69
Lincoln Memorial University	(1911)	57
Meharry Medical College	(1911)	66

Ohio December Report

Dr. George H. Matson, secretary of the Ohio State Medical Board, reports the oral, written and practical examination held at Columbus, Dec. 9-11, 1913. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 21, of whom 20 passed and 1 failed. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent.
Howard University	(1912) 79.5, 88.1; (1913)	75.3
University of Louisville	(1912)	86
University of Michigan, Dept. of M. and S.	(1898)	83.1
New York Medical College and Hosp. for Women	(1895)	75
Cleveland College of Physicians and Surgeons	(1913)	81.4
Cleveland-Pulte Medical College	(1913)	77.1
Eclectic Medical College, Cincinnati	(1911)	77.5
Ohio-Miami Medical College	(1913)	79.9
Western Reserve University (1909) 83.9; (1913) 82.7, 82.9, 83.8, 84.4, 92.7.		
University of Pennsylvania	(1887) 75; (1912) 85.5,	87.9
National University, Athens, Greece	(1911)	78.4

FAILED		
Starling-Ohio Medical College	(1913)	72.3

Pennsylvania December Report

Dr. N. C. Schaeffer, secretary of the Bureau of Medical Education and Licensure of Pennsylvania, reports the written examination held at Philadelphia, Dec. 2-4, 1913. The number of subjects examined in was 5; total number of questions asked, 50; percentage required to pass, 75. The total number of candidates examined was 120, of whom 108 passed and 12 failed. The following colleges were represented:

PASSED		
College	Year Grad.	Total No. Examined
Georgetown University	(1911) (1913)	2
Howard University	(1913)	1
Chicago College of Med. and Surg.	(1913)	1

Rush Medical College	(1913)	1
University of Louisville	(1911)	1
Baltimore Medical College	(1911) (1913, 2)	3
College of Phys. and Surgs., Baltimore	(1912, 2) (1913)	3
Johns Hopkins Medical School	(1910)	1
Maryland Medical College	(1912, 6)	6
University of Maryland	(1912) (1913)	2
Columbia University, Coll. of P. & S., N.Y.	(1910) (1911)	2
New York Homeo. Med. Coll. and Hosp.	(1913)	1
Cleveland-Pulte Medical College	(1913)	1
Hahnemann Med. Coll. and Hosp., Phila.	(1912) (1913, 8)	9
Jefferson Med. Coll.	(1910) (1911) (1912, 3) (1913, 12)	17
Medico-Chir. Coll. of Phila.	(1909) (1912, 4) (1913, 20)	25
Temple University	(1912, 2)	2
University of Penn.	(1903) (1911.5) (1912.6) (1913.7)	17
University of Pittsburgh	(1912) (1913, 5)	6
Woman's Med. Coll. of Pennsylvania	(1912) (1913, 2)	3
Medical College of Virginia	(1913, 2)	2
Queen's University, Kingston Ontario	(1909)	1
University of Toronto	(1908)	1

FAILED

University of Southern Calif., Coll. of P. and S.	(1912)	68.8
Georgetown University	(1913)	72.6
University of Louisville	(1911) 70.4; (1912)	52.6
Maryland Medical College	(1912) 65.6; 70.4; (1913)	70.
Leonard Medical School	(1913)	68.
Hahnemann Medical College and Hosp., Phila.	(1913)	67.8
University of Naples	(1895) 69.2; (1903) 71.6; (1913)	64.

The following questions were asked:

PHYSIOLOGY, PATHOLOGY AND BACTERIOLOGY

1. In acute lobar pneumonia, describe the local lesion and the disturbed functions. 2. Name two heart lesions that might result in broken compensation, and show how the normal functions of the heart would be disturbed. 3. Describe two lesions—one of the gall-bladder and one of the liver—that will cause lessening of the supply of bile to the duodenum. Describe the effect of this loss on digestion assimilation. 4. Describe the lesions, name the usual causes and give the laboratory technic for demonstrating the varieties of urethritis. 5. In carcinoma of the female breast, describe the gross and the microscopic appearance of a common variety and give the usual points of metastasis. 6. In examining a specimen of urine from a pregnant woman, state the findings that would suggest oncoming uremic convulsions. 7. Given a case of malaria, describe the lesions and detail the laboratory tests for making the diagnosis positive. 8. Describe the lesions in tabes dorsalis (locomotor ataxia), and show how the functions of the cord are disturbed. 9. Given a case of meningitis, give your technic for demonstrating the determining cause by means of lumbar puncture. Discuss the disturbance of function that would result from such a case. 10. Given a suspected case of typhoid fever, by laboratory tests differentiate the case from septic infection.

DIAGNOSIS, SYMPTOMATOLOGY, MEDICAL JURISPRUDENCE AND TOXICOLOGY

1. Describe the symptoms and course of chorea. 2. Enumerate the symptoms of varicella. Name a disease with which it may be confused and differentiate them. 3. Enumerate the symptoms and physical signs diagnostic of pleurisy with effusion. 4. Enumerate the diagnostic symptoms of chronic eczema, and differentiate it from scabies. 5. What is pyemia? How is it characterized clinically, enumerating the general symptoms? 6. Enumerate the symptoms of tuberculous joint-disease, and differentiate it from acute articular rheumatism. 7. Give the etiology of, and enumerate the symptoms of acute nephritis. Name four toxic drugs that may produce it. 8. Describe in detail the symptoms of strychnin poison, and differentiate it from uremic convulsions. 9. How would you differentiate a case of severe ptomain poisoning from the conditions produced by arsenical poisoning? 10. As a witness in court, what would be your evidence in substantiating the fact of death by drowning?

GYNECOLOGY AND OBSTETRICS; PHYSIOLOGIC CHEMISTRY

1. Given a pregnant woman, of seven months or more, stricken suddenly with severe hemorrhage, what would be your deductions? Outline the management of the case. 2. State pelvic measurements or other conditions that would warrant an interference with the natural progress of gestation or of labor; what procedure would you recommend in each condition noted. 3. Enumerate the conditions that must be considered in excessive or protracted bleeding in a non-pregnant woman: outline surgical operations or methods that may be required, with the reason for selecting each. (Omit details of operation.) 4. If at the third month, a primipara should engage you to care for her through the period of gestation and labor, give in detail your care of the case, including measurements and tests. 5. What injuries may result to the birth-canal from labor? Give in detail the management of a case of normal labor, with a view of preventing such injuries. 6. What is the significance of sudden collapse and shock that might develop during labor? Outline your treatment for such a case. (Omit description of operation.) 7. What breast complications may follow confinement? Outline the care of the breast that would probably prevent such complications. If they should occur, how would you treat them? 8. Indicate the steps in the digestion and absorption of the food substances present in a ham sandwich. 9. Discuss the chemistry of intestinal fermentation and putrefaction. 10. How may blood be detected in the feces, and what is the significance of this finding?

SURGERY AND ANATOMY

1. Enumerate the constitutional and local conditions that may cause delayed or non-union of bone after a fracture. State two surgical procedures for its correction. 2. Outline the methods of examination by which you would determine the existence of a fracture at the surgical neck of the humerus: what is the usual deformity in this fracture? What is the anatomic explanation? 3. Enumerate the *early* symptoms that are caused by a typhoid perforation. Outline a surgical operation for the same. 4. State the usual anatomic avenues by which infection reaches the mastoid process. Outline a surgical operation for mastoid abscess. 5. What anatomic structures may be involved in the extension of a bunion? Describe its surgical treatment. 6. Name the varieties of club-foot: outline a surgical operation for the correction of any one form, with the anatomic and mechanical reasons for employment of same. 7. In fractures of both bones at the forearm, the actions of what muscles should be specially considered? What character of splints should be applied? 8. Enumerate symptoms and conditions on which might be based the diagnosis of a malignant growth of the breast: outline a suitable surgical operation, giving the surgical anatomy of parts. 9. What is the usual position of the fragments in fracture of the patella? What is the anatomic explanation? State, without details of technic, two methods of treatment. 10. Outline two methods of treating carbuncle—give reasons for employment of each.

PRACTICE AND MATERIA MEDICA AND THERAPEUTICS; HYGIENE AND PREVENTIVE MEDICINE

1. State the sanitary precautions to be observed in the treatment of scarlatina. What are its possible dangers? Give indications of three remedies that might be used in its treatment. 2. (*a*) Describe the technic of general anesthesia (*b*) Give reasons for the choice of each one of three agents used for this purpose. 3. Give the management and treatment of a well-developed case of follicular tonsillitis. 4. Outline the most important factors in the treatment of a case of incipient tuberculosis. 5. Outline the therapeutic action of (*a*) santonin (cina homeopathic), (*b*) camphor, (*c*) cimicifuga, (*d*) aconite, (*e*) ergot. 6. Outline the general medical treatment in exophthalmic goiter. What symptoms, in your opinion, would indicate the need of surgical intervention? 7. Given a case of typhoid fever with hemorrhage, outline the management during the first period of the hemorrhage and post-hemorrhagic stage and state the therapeutic action of each drug used. 8. In the treatment of chronic interstitial nephritis, what dietetic and hygienic suggestions would you make? Name three drugs that might be employed in the treatment of this condition, with the precise reason for the employment of each. 9. What are the main objects accomplished by the scientific ventilation of a school building? What degree of temperature is most conducive to health and mental activity in such buildings? 10. What are the main dangers to be apprehended in raw milk as ordinarily found in the market? What measures should be adopted in minimizing such dangers?

Book Notices

THE HEALTH MASTER. By Samuel Hopkins Adams. Cloth. Price, $1.35 net. Pp. 338. Boston: Houghton, Mifflin Company, 1913.

Recently we have become familiar with the theater, including the "movies," as a means of public education on health topics. Whether or not this method of presenting matters of public hygiene will be permanent remains to be seen. However effective the theater may be, its influence is necessarily limited to the comparatively small number who can witness the performances. The popular book, however, can be reproduced without limit, and thousands can read it where one would witness a theatrical performance; while a single copy, selling at the price of one theater-ticket, can be passed from hand to hand until it is worn out.

The appearance of a story presenting the latest scientific knowledge on health matters is encouraging. When the writer is not a physician, but one who is widely and favorably known as a novelist, as is Samuel Hopkins Adams, his book becomes all the more significant. Known to many thousands of readers for his articles in *Collier's Weekly* on the "Great American Fraud," Mr. Adams' story of a family which, through the wisdom of the father, is given the advantage of the latest scientific knowledge, will come as a striking demonstration of the value of modern preventive medicine in the household. A well-to-do business man decides to adopt the so-called Chinese plan of employing a physician; that is, to engage a competent man, at an annual salary, to guard the family from disease, instead of making them well after they become ill. Through good fortune, he secures the right man for the position. Dr. Strong may be a trifle abrupt in some of his methods; in fact, the professional reader can readily understand why he was not a conspicuous success in general practice under conventional conditions. But he knows his business, and with entire charge of the household (as soon as he has converted Grandma Sharpless) he is able to show results that amply justify the expense and trouble required.

Following his employment as family health guardian, he inquires into the milk- and water-supply of the household; investigates the school which the children attend; finds out where flies in the kitchen are coming from, and looks over each member of the family. The first occasion for interference arises when he finds the baby of the household suffering from adenoids. Father, mother and grandmother make the usual objection to prophylactic interference, and are answered

by the health master, with the result that three days later Betty, the baby, tells her little next-door neighbor, "You ought to get a new nothe, Thally. It don't hurt much and breathin' ith a lot more fun." The corner drug-store, with its habit-forming mixtures, heart-depressant headache tablets and cheap whisky disguised as patent medicines, comes in for a discussion in which Mr. Adams is clearly at home. The avoidance of eye-strain and the best method of illumination are discussed under the title "The Magic Lens." Incidentally, the health master makes over a neurotic girl into a strong and beautiful woman, by the exercise of common sense and scientific knowledge. Scarlet fever in the household serves as an object-lesson on infectious diseases. A hopeless case of cancer in another family furnishes a text for a discussion of this dread disease. A visit to the town of a faker who combines quackery with religion gives an opportunity to discuss this form of fraud. A chapter on colds, one on infectious diseases of childhood, and a final chapter on sex hygiene seem to the interested reader to be more the natural development of the story and of the experiences of the family than any effort to bring public health into the book for discussion.

Mr. Adams has done a marked service to the public, and has opened up a new field for literary effort. He shows a knowledge of scientific medicine remarkable in a layman, and this makes what he says of most importance. It is to be hoped that his book is but the forerunner of others. A cheap edition in paper covers, purchasable in quantities at a nominal figure, should be available. State and municipal departments of health could not secure any better literature for public education. Copies should go into all public libraries and reading-rooms. In fact, some of our philanthropic organizations who wish to devote their surplus funds to a proposition sure to bring results could not do better than to purchase and distribute as many copies of Mr. Adams' book as possible. Like his earlier articles on patent-medicine frauds, this book is so reasonable and sensible as to carry conviction, while the scientific truths will stick in the minds of the readers long after the details of the story are forgotten.

RADIUM AS EMPLOYED IN THE TREATMENT OF CANCER, ANGIOMATA, KELOIDS, LOCAL TUBERCULOSIS AND OTHER AFFECTIONS. By Louis Wickham, M.V.O., Médicin de St. Lazare, and Paul Degrais. Translated by A. and A. G. Bateman, M.B., C.M. Cloth. Price, $1.25. Pp. 111, with 53 illustrations. New York: Paul B. Hoeber, 1913.

This is an epitome of the larger work by the same authors which has been reviewed in these columns. It does not go into the details of methods and technic found in the larger work, but it gives a summary of the authors' clinical work. The reason for the publication of this work is not clear; it contains nothing not found in the other. The book is interesting as showing the clinical results of radium therapy in pioneer skilled hands. The results show, as Wickham demonstrated long since, that radium, like the Roentgen rays, can produce remarkable therapeutic results in various pathologic tissues, including cancer. It is interesting to note that the results here shown—many of them published several years ago—are of the same character as those which have recently been used, as though they were new, with such telling effect in exploiting radium in the treatment of cancer before the profession and the public.

EPIDEMIC INFANTILE PARALYSIS (Heine-Medin Disease). By Prof. Paul H. Römer, Principal of the Institute of Hygiene and Experimental Medicine of Marburg. Translated by H. Ridley Prentice, M.B., B.S., M.R.C.P. Cloth. Price, $2.75 net. Pp. 208, with 57 illustrations. New York: William Wood & Co., 1913.

This monograph gives an entertaining and clear account of what is known about the natural history of infantile paralysis up to the last year. The author gives generous credit to Wickman and agrees with him on most points on which there is a difference of opinion, having reached similar conclusions from his own extensive experiments and observations. The book contains six chapters: I. The development of our knowledge of the nature of the disease of Heine and Medin. II. The symptomatology of the disease in man. III. Etiology of the disease. IV. Pathology and pathogenesis. V. Epidemiology VI. The fight against the disease.

Miscellany

Deaths Following Injection of Neosalvarsan in Los Angeles

Last week (THE JOURNAL, March 14, 1914, p. 861) we noted the deaths of seven patients in the Los Angeles County Hospital following intraspinal injection of neosalvarsan. At that time we stated that a fuller report would be published later. We have since received by wire from our special correspondent the following statements from Dr. C. H. Whitman, superintendent of the hospital, and Dr. A. T. Charlton, pathologist, which embody the substance of a report made by them to the Los Angeles County Board of Supervisors:

STATEMENT OF DR. WHITMAN

I herewith submit a report covering as nearly as is possible for me to do all of the circumstances and particulars appertaining to the fatalities which occurred at the County Hospital following the administration of salvarsanized serum to eight patients, all of whom were suffering from the effects of syphilis in advanced stages of the disease. In some there was disease of the bones. Others were at advanced stages of locomotor ataxia in which portions of the spinal cord were degenerated. The Wassermann test, which is considered reliable, was made in each and every case. In addition, cell-count of the cerebrospinal fluid and the butyric-acid test were made, each corroborating the clinical diagnosis of syphilis. Hence there can be no question as to the nature of the disease from which these patients suffered.

The diagnosis having been confirmed, the question of treatment was a matter of selection. In view of the facts that the older forms of treatment had proved ineffective in syphilitic cases in which the spinal cord was involved, and that neosalvarsan, which has been regarded as a specific in the earlier stages, had proved ineffective when administered by the blood or into muscular tissue, another recognized mode of procedure was adopted, namely, the intraspinal administration of salvarsanized serum. The technic of this method is somewhat complicated, but it is exact; that is, the quantity given to each person is definitely known, and according to reports from medical authorities this method is more effective than any other. In this connection, I desire to state that the Los Angeles County Hospital, instead of being an experimental station, as might be inferred from some published accounts concerning this unfortunate affair, is in fact, although progressive, one of the most conservative of its kind, which is evidenced by the fact that the intraspinal method of using salvarsanized serum had been in use for at least a year in many medical centers throughout the country before being used in this institution, and medical reports seem to indicate that this method is becoming the method of choice by many physicians in the treatment of spinal syphilis. It follows, therefore, that the treatment here used was no experiment, and I desire at this time to emphasize the fact that no experimental treatment on human beings has been conducted in this institution since my incumbency, nor will any be tolerated.

March 7, after consultation with several physicians, all members of the attending staff, Dr. A. T. Charlton directed the administration of salvarsanized serum to eight patients in the County Hospital. The serum was prepared by himself, according to authority. As all accounts so far published in the local press concerning the preparation and administration of this remedy to these patients are more or less inaccurate, I submit herewith attached, in detail, Dr. Charlton's statement concerning the technic followed by him throughout the whole procedure. I desire to state further that from the time my attention was called to these cases until the present, I have left nothing undone that would shed light on the cause of this tragedy. I personally drove to Pasadena and got the coroner and, at his request, went for the county necropsy surgeon. I also called in consultation half a dozen or more prominent members of the profession, whose knowledge and advice I thought might be of service to us in this emergency. I personally telephoned to all of the morning

newspapers, giving them the first information they had of the affair, and I have practically placed myself and the records of the hospital at the disposal of the public through the press and county officials ever since. I will state that the embalming of these bodies prior to necropsy was not done at the County Hospital, or by any one connected with the hospital, but was done without our knowledge after the coroner had removed the bodies from the hospital. It is only fair to the coroner to state that to my personal knowledge he was advised by six or more physicians that a necropsy would not reveal any characteristic lesions that would account for the deaths, and this opinion was substantiated by the necropsy. The necropsy, however, was justified since it revealed syphilitic lesions in the lung, liver and spinal cord in a patient who had denied having syphilis, thus corroborating the clinical and laboratory diagnosis and justifying the antisyphilitic treatment.

The most plausible explanation of the cause of death in these cases is that oxidation had taken place in the neosalvarsan. This could have occurred through some defect in the glass container that was not apparent at the time the preparation was used.

In conclusion I desire to express our appreciation of the treatment accorded our County Hospital by the great mass of the public and the press in this unfortunate affair, and I can only repeat that there is nowhere more sorrow concerning this unfortunate outcome of what was intended to be for the best health interests of the deceased patients than there is among the house and attending staffs of the Los Angeles County Hospital.

STATEMENT OF DR. CHARLTON

Friday, March 6, between 9 and 11 a. m., I withdrew about 15 c.c. of blood from the veins of the arms of eight patients. From two others only about 6 c.c. of blood were obtained. As the amount of blood received from the latter two patients furnished an insufficient quantity of serum for the spinal treatment, I decided to make a dilution which would include eight spinal and two intravenous treatments, and this was done. Two ampules were used for this dilution. On account of the lapse of time, the intravenous treatment was not used. The blood was taken through sterile pipets and placed in sterile centrifuge tubes, and the serum separated from the fibrin and red cells. The serum, which was perfectly clear, was pipetted off to the amount of 5 c.c., and this was placed in a sterile glass-stoppered bottle. To this was added 1, 2 or 3 mg. of freshly dissolved neosalvarsan in sterile normal salt solution. Following this there were added to the preparation 8 c.c. of sterile normal salt solution, a sterile graduated all-glass syringe being used. This procedure was carried out absolutely with the serums from each of the eight patients separately. The preparations were then all placed in a water-bath at a temperature of 54 C. for half an hour. They were then placed in a refrigerator for twenty hours, each bottle labeled with the patient's name and the dosage for each.

Under the usual aseptic conditions from 3 to 7 c.c. of spinal fluid were drawn from each patient. Then from each individual bottle there was taken the diluted salvarsanized serum, a sterile graduated glass syringe being used, and with this syringe the contents were introduced through the same needle by which the spinal fluid was withdrawn.

Protests Against the Exploitation of the Tuberculous

The following quotation is from a paper by Dr. L. Rabinowitsch-Kemper of the University of Berlin, read before the last meeting of the National (British) Association for the Prevention of Consumption and Other Forms of Tuberculosis:

"As the result of various observations I suspect further that tubercle bacilli may be caused to enter the blood-stream not only by the injection of tuberculin, but also by the use of chemicotherapeutic preparations; it appears that the most diverse irritants acting on the tuberculous organism favor the entrance of bacilli into the circulation.

"In this direction an extensive field for research is presented for scientific activity. Still more, as has recently become usual, experimental researches in laboratories are necessary rather than that the tuberculous patient should be required to play to some extent the part of the experimental animal. In precisely the last two years a regular succession of means for the treatment of tuberculosis have been put on the market, without previously having been sufficiently investigated. Some of these have only enjoyed an evanescent existence.

"Brilliant cures under the mask of science are announced to the public in the fashion of the advertiser. The new method is always infinitely superior to all the other methods of tuberculosis treatment. The evil results are charitably veiled. The dead can no longer speak—those who have to thank such 'cures' for premature delivery from their tuberculous infection. May the recently uttered words of Theobald Smith, the great American tuberculosis investigator, receive full consideration: 'The medical profession should see to it that vaccine therapy does not degenerate into inconsiderate and reckless experiments on human beings, that it does not create false hopes in hosts of patients, and that it does not originate and end in commercialism and the desire to exploit the weak and unfortunate.' These sentiments, I am sure, will call forth a ready assent in your minds."

Reading Courses and Scientific Home-Making.—The state of New York has begun an important scheme toward making better citizens through a series of reading courses conducted from Cornell University under the directorship of L. H. Bailey. These courses are to cover a variety of subjects and are adapted and intended especially to reach the small town and farming population. The course of lessons for the farm home consists of carefully prepared pamphlets on a multitude of subjects connected with the house, the garden, the preparation of foods, the value of the various foods in the dietary, the matter of proper clothing and how to select and judge textiles, the preservation of fruits and other foods, the work of the dairy, physical welfare study and entertainment, social and sociologic aspects of country life, etc. These lessons are sent out monthly to those who express a desire for them, and each is accompanied by a sheet on which is propounded a question to be answered on some subject selected for the course. This is to assist the persons following the course to classify their knowledge on the subject treated, and to contribute ideas toward the success of the course. A few suggestive titles are "Rules for Planning the Family Dietary," "The Box Luncheon." "A Canning Business for the Farm Home," "Hints on Choosing Textiles," etc. The *Announcer*, a publication of the College of Agriculture of the university, is published for the purpose of acquainting the people of the state with the kinds of work that are in progress at the school, forthcoming bulletins, reading courses, and events and programs of meetings, etc. The February number gives the program of "Farmers' Week," February 9 to 14, to be held at the School of Agriculture. There will be lectures and demonstrations on all conceivable subjects of interest to the farmer and his family. This is real, advanced work in the improvement of health and citizenship, and constitutes a movement which should be copied and extended.

Calomel Fumigation Treatment of Syphilis.—K. S. Krikorian of the American School of Medicine, Beirut, Syria, in a letter in the *Lancet*, Jan. 3, 1914, calls attention to a method of using mercury in the treatment of syphilis, by which a "cure" is said to be effected in a few weeks. Krikorian has watched some of the cases and says that he is surprised at the results. The patient is kept for the greater part of a week in a room tightly closed, and is instructed to employ calomel fumigation and keep the room at a uniform degree of saturation. Patients are allowed to go out occasionally for fresh air, but are required to sleep in the room. It is said that no patient experiences more than a slight salivation. At the end of a week the calomel fumigation is discontinued and the patient is placed on a diet wholly of bread, and infusion of sarsaparilla is given. This is continued for two weeks. Krikorian has seen a number of patients who were relieved of their symptoms in three weeks, and has had brought to his attention a number of patients who remained apparently cured two or three years after such a course.

Medicolegal

Money Paid for Treatment and Medicines Recoverable on Breach of Guaranty of Cure

(Bernard vs. Dr. Nelson Co. et al. (Minn.), 143 N. W. R. 1133)

The Supreme Court of Minnesota finds no grounds for the assignments of error made after a verdict was rendered in favor of the plaintiff for moneys paid for treatment and medicines, he having sufficiently alleged and proved a guaranty of a cure and failure thereof and a proper demand for repayment. The court says that the defendant, without any indication of which defendant it means, there being several, contended that the plaintiff's remedy, if any, was by an action for malpractice, and that this action in the nature of one for money had and received would not lie, because the law does not sanction contracts of the character alleged. His argument was that, as all communications between physician and patient are privileged under the Minnesota statute, the former would not have equal opportunity to defend himself if the latter insisted on the privilege. But the statute merely prescribes a rule of evidence, and does not prevent an action for money had and received to recover money paid by the patient to the physician in consideration of the latter's guaranty to cure him of a certain disease, when such consideration fails. Furthermore, the physician is in no position to urge the statute as a bar to the action when he has been allowed to testify fully in regard to the transactions involved. The court holds the action maintainable.

Again, the defendant complained of a refusal of the trial court to charge the jury that no recovery could be had for moneys paid for the medicines, on the ground that there was no evidence to justify a finding that they were worthless. The court charged that no recovery could be had on this claim unless the jury found that they were in fact worthless. The supreme court finds no error in this regard. The defendant testified, and the other expert testimony was to the same effect, that if the plaintiff, as he claimed, contracted the disease in question not more than three days prior to the making of the first contract, it was curable in from three to six weeks. There was sufficient evidence to uphold the plaintiff's version as to when he contracted the disease, and also a finding that the medicines were used as directed for upward of a year without benefit. The latter was persuasive of worthlessness, and justified the trial court's action and the verdict rendered.

Liability for Malpractice in Repeatedly Cutting Away Tissue Growth in Nostril—Requirements of Specialists

(Coleman vs. Wilson (N. J.), 88 Atl. R. 1059)

The Court of Errors and Appeals of New Jersey reverses a judgment rendered for the defendant, who was sued for malpractice by the administratrix of one Coleman. The court says that the defendant was a physician who made a specialty of diseases of the eye, nose, ear and throat, who was consulted by Mr. Coleman concerning an obstruction in his left nostril, to remedy which an operation was performed by the defendant. The operation consisted in the separation of the turbinated bone from the septum or central partition of the nose to which it had become adherent, and the removal of portions of the bone, together with some tissue that protruded from above into the nostril. It was not claimed that this operation was unnecessary, or that it was unskilfully performed, or that it in and of itself caused the death of the patient, which occurred eighteen days later from an inflammation of the coverings of the brain. It was, however, an indubitable fact that the patient died under the after-treatment conducted by the defendant, and that such after-treatment consisted in great part of the repeated cutting away by the defendant of a tissue growth that kept forming in the nostril at or near the site of the original operation. The defendant himself testified that when this growth kept coming back as fast as he cut it away he "began to become suspicious it was a malignant growth," and thereafter continued to cut it away under that impression; and that there was testimony that if the growth was malignant its removal was proper. On the other hand, there was testimony that if such growth was not malignant, but a normal product of the inflammatory process set up by the operation, its removal was not proper and might have been the efficient cause of the condition of which the patient died, and a jury might have so found. It was also clearly a jury question under the testimony whether the rapidly forming tissue removed by the defendant was such a natural barrier, or whether it was a cancerous growth, as he suspected it to be. It was not enough, however, for the plaintiff to satisfy the jury that the tissue removed by the defendant under the suspicion that it was malignant was in fact healthy tissue that should not have been disturbed; she must go further and show that it was negligence for the defendant to operate for the removal of this tissue without ascertaining its real nature or employing the means at his command to that end by causing a pathologic analysis of such tissue to be made before continuing to remove it.

This was largely an expert question. When, therefore, counsel for the plaintiff called an expert specialist to the stand and put to him the crucial question, "Doctor, would a reasonably prudent surgeon, if in doubt as to the nature of tissue found on an examination by him, not have a prompt analysis made?" it was error to overrule such question. The reason given for excluding this testimony was that it was outside the issue. The practical result of this ruling was that the case went to the jury, not on the particular negligence which the plaintiff had sought to prove, but on the general question of the failure of proper after-treatment.

Another closely allied error was the refusal of the trial court to charge these requests of the plaintiff's counsel: "(1) Defendant acted as a specialist. As such he was bound to have that degree of skill and knowledge ordinarily possessed by specialists. (2) Defendant as a specialist in this case was bound to have a greater degree of skill and knowledge in the performance of the operation than that which a physician in regular practice is bound to have and exercise." The pertinent rule to be gathered from the cases is correctly stated in 30 Cyc. p. 1571, as follows: "A physician holding himself out as having special knowledge or skill in the treatment of particular diseases is bound to bring to the discharge of his duty to a patient employing him as such specialist, not merely the average skill and knowledge possessed by general practitioners, but that special degree of skill and knowledge possessed by physicians who are specialists in the treatment of such disease, in the light of the present state of scientific knowledge."

The case conclusively showed that the defendant held himself out as a specialist in the treatment of diseases of the nose, and that as such specialist he was consulted by Mr. Coleman on the advice of the ordinary practitioner who had attended him. Under such circumstances, the question whether the defendant was a specialist, while one of fact, was primarily for his own determination, with the result that if he held himself out as a specialist it became his duty to bring to his patients that degree of skill that such a practitioner assumes to possess.

Power of Local Board of Health to Require Bottling of Milk to Prevent Disease

(Board of Health of Covington vs. Kollman (Ky.), 160 S. W. R. 1052)

The Court of Appeals of Kentucky holds that the board of health of the city of Covington had power to adopt a regulation requiring milk for sale in quantities of less than 1 gallon to be handled in sealed transparent bottles. The court says that in cities of not less than 2,500 inhabitants the local boards of health are invested with the same powers as the county local boards.

By sections 2055, 2057 of the Kentucky statutes, local boards are empowered, and it is made their duty, to execute such sanitary regulations as they may consider expedient to prevent the outbreak of cholera, small-pox, yellow fever, scarlet fever, diphtheria and other epidemic and communicable

diseases. They are further empowered to examine into all nuisances, sources of filth, or causes of sickness that in their opinion may be injurious to the health of the inhabitants within any county of the state. The court is not inclined to take the narrow view that the board powers thus given can only be exercised by local boards when an epidemic actually exists, or when the cause of sickness is such as to amount to a nuisance. It is well settled that the powers of such boards, conferred for the protection of the public health, should be liberally construed in order to effectuate the purpose of the legislature. The most effective way to prevent disease is to remove the cause thereof. Therefore local boards are given the power not only to prevent the spread of epidemic and communicable diseases, but to prevent their outbreak, and to this end are given the further power to examine into and abate such causes of sickness as may in their opinion be injurious to the health of the inhabitants within any county.

It was insisted that the sale of milk in cans was not shown to be such a cause of disease as to justify the regulation in question, and that to give such a construction to the statute would open the way for health boards to adopt all sorts of fads. In response to the first contention, however, it is sufficient to say that it is a recognized fact that numerous diseases result from the careless handling of milk, and that cans are not as sanitary as sealed bottles. Being the agency created by the legislature to prevent the outbreak and spread of disease, and to remove causes of sickness, the presumption is always in favor of the board of health, and its action will not be interfered with unless it appears unreasonable or oppressive. The fact that its membership may sometimes be composed of extremists is no reason for denying the power conferred by the legislature. Nor should the court be controlled by the fact that a scientific theory of to-day may be discarded tomorrow. In matters affecting the public health it is the part of reason and common sense to adopt the best scientific thought of the age in which we live. If research and investigation lead to other accepted theories, then the court must adopt them. Were the rule otherwise, both the courts and the legislature would be without a competent guide. Viewing the matter in the light of the accepted theories of science at the present time, a regulation of a local board of health requiring milk to be handled in sealed transparent bottles is neither unreasonable nor oppressive.

Testimony as to Physical Condition of Wife in Action Against Husband

(Edwards vs. State (Tex.), 160, S. W. R. 709)

The Court of Criminal Appeals of Texas holds that there was no error, on the trial of Edwards for perjury alleged to have been committed by him in a suit for divorce, in admitting, after he had testified to a natural impotency of the body of his wife, testimony of her father and mother and of a physician who examined Mrs. Edwards after the separation and just before the trial of the divorce suit, and who said that she was a natural woman and had no such growth or defects as testified to by Edwards. The court says that the contention could not be sustained that, because Mrs. Edwards was the wife of the defendant, in the perjury case, her mother and the physician should not be permitted to testify as to her condition in the respects named, as that would be permitting the wife to testify against her husband. It was true that Mrs. Edwards could not be permitted to testify; the law closed her mouth. But to hold, further, that she was not permitted to submit her person to examination and that the persons making the examination were not permitted to testify, would be monstrous. The defendant could testify to any falsehood that he might desire, and the falsity of it could never be shown, if such were the rule. The physician and the mother merely testified to the condition of the sexual organs of Mrs. Edwards from an examination of her person, and that was not permitting the wife to testify. The fact that they were persons of her own choosing might go to the weight to be given their testimony, but not to its admissibility.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, ATLANTIC CITY, JUNE 22-26.

Alabama Medical Association, Montgomery, April 21-24.
Am. Assn. of Pathologists and Bacteriologists, Toronto, Apr. 10-11.
American Surgical Association, New York, April 9-11.
Arizona Medical Association, Tucson, April 21-22.
California State Medical Society, Santa Barbara, April 14-16.
Georgia Medical Association, Atlanta, April 14-16.
Kansas Medical Society, Wichita, May 6-7.
Louisiana State Medical Society, New Orleans, April 20-23.
Maryland Medical and Chir. Faculty, Baltimore, April 28-30.
Mississippi State Medical Association, Columbus, April 14-16.
Missouri Valley Medical Society, Lincoln, Neb., Mar. 26-27.
Nat. Assn. for Study and Prev. of Tuberculosis, Washington, May 7-9.
New York State Medical Society, New York, April 28-30.
Ohio State Medical Association, Columbus, May 5-7.
South Carolina Medical Association, Florence, April 14-16.
Tennessee State Medical Association, Memphis, April 7-9.

NEW YORK ACADEMY OF MEDICINE

Meeting held Feb. 12, 1914

DR. WILLIAM P. NORTHRUP in the Chair

Congenital Malaria

DR. MURRAY H. BASS: The case I wish to report was first seen Feb. 19, 1913. The infant, aged 7½ weeks, had been fretful since she was 3 weeks of age; she had numerous green stools, vomited occasionally, and had been losing weight. The baby was bright at times while again she appeared dazed and semicomatose. The lymph-nodes, liver and spleen were slightly enlarged, and the abdomen was slightly distended but lax. Examination of the blood showed the presence of plasmodia, and the mother gave a history of untreated malaria during pregnancy. The baby was born in December and was apparently healthy until 1 month old. Under treatment with quinin and iron the child's condition improved rapidly. On the fourth day the plasmodia could no longer be found. The hemoglobin index rapidly rose from 16 to 52 per cent.

Another case occurred about eight years ago in a woman who had suffered from malaria some time previous to the birth of her child, which at the time of birth appeared perfectly healthy. The blood of the infant was examined and showed the presence of plasmodia immediately after birth. After a few doses of quinin the parasites disappeared. Several months later the first child was suddenly taken ill with symptoms of acute intestinal intoxication, and died in convulsions within twenty-four hours. At post-mortem the only abnormality in the gross findings was a very large thymus. There was no hyperplasia of the lymphoid tissues at the base of the tongue or in the follicles of the intestinal tract. The spleen was normal in size and consistency and the mucosa of the intestinal tract showed no injection or erosion. Microscopically, the liver showed a slight grade of beginning diffuse necrosis, the kidneys a moderate degree of nephritis, and the spleen some hyperplasia of the malpighian bodies and considerable pigment through its substance. No malarial parasites were found in the spleen.

DISCUSSION

DR. FLOYD M. CRANDALL: It seems strange, if the congenital transmission of malaria is possible, that it does not occur more frequently. In a case which I reported in 1892, I believe, everything in the clinical history and findings seemed to give positive proof of the congenital origin of the disease. In this case the child was born during the sweating stage of a malarial paroxysm and appeared to be normal. Eighteen hours after birth it became blue and pinched in appearance and was thought to be dying. The child had a temperature of 102 F. The same thing occurred the following day; the child had in all four successive attacks, each lighter than the preceding one. The plasmodia were found in the blood of both mother and child. I do not see how the case could be other than a congenital one.

DR. CHARLES HERRMAN: Twelve years ago I saw a case which I believe was congenital malaria. The mother had recently come from Italy and gave a clear history of malarial attacks. When 3 weeks of age the baby had attacks of cyanosis followed by fever, though it did not have distinct chills. Plasmodia were found in the blood, and under quinin treatment the attacks disappeared.

Tropical Diseases in Children

FREDERICK F. RUSSELL, M.D., Major, U. S. A.: Children's diseases in the tropics are very similar to those in this latitude with a few noteworthy exceptions. Diphtheria, scarlet fever, mumps and whooping-cough are not common, measles is more often seen, and chicken-pox is quite prevalent. In most places in the tropics small-pox is so general that it is practically a disease of childhood. The more frequent diseases are diarrheas and dysenteries, eczema, furunculosis, prickly heat, malaria in all its forms, infections with intestinal parasites, and above all syphilis, both acquired and congenital. In the Far East we have beriberi, yaws, and at times cholera and plague. Infections with intestinal parasites are the most important from the practical point of view, not because they are the direct cause of serious disease, but because of their harm to the general health. The circuit followed by intestinal parasites from man to man is quite direct because of the custom of using human ordure as a fertilizer for green vegetables. The commonest worm is the *Ascaris lumbricoides*, almost every native up to middle life being infested. It is customary to administer calomel and santonin twice a year as a routine measure. The most important nematode among children is the hookworm; in countries where it is prevalent almost every native child is infected. Tapeworms and flukes were also rather more prevalent in the tropics than in the temperate zones, the most important being the dwarf tapeworm, *Hymenolepis*. The prevalence of malaria among children gives a ready index to the amount of malaria in a district. The malarial index is readily ascertained by noting the percentage of children with easily palpable spleens. All varieties of malaria occur and the course is more often atypical than not, a fact which is responsible for relapse after relapse until the disease becomes chronic.

One of the most interesting diseases of the East is beriberi, and for years an infantile form has been recognized in breast-fed infants. A typical case in an infant occurs as follows: A young infant of 2 or 3 months, previously healthy, is suddenly seized with paroxysms of pain, during which it straightens out its body and becomes rigid, the abdominal walls and epigastrium becoming tense and hard. The child cries constantly, the face becomes cyanosed and the veins of the neck turgid. The pulse is small and hard. The paroxysm passes off only to recur again and again until death supervenes, in the course of a few days or hours. There is also a chronic form of beriberi with gradual onset and sudden termination. At necropsy the same lesions are found as in adults. The singular point about this disease is the high mortality among breast-fed children; 56 per cent. of the total infant mortality of Manila has been caused by this disease. Tetanus is so common everywhere in the tropics that one has to guard against it even in giving a hypodermic of morphin. All the bacillary forms of dysentery are also common. Bilharziosis infection is common in China, Japan and the Philippines.

Pellagra in Children

DR. W. J. MACNEAL: In pellagra in children the symptoms and lesions are similar to those of the adult; but the involvement of the nervous system is not so marked in children. One seldom sees the toxic psychoses that are encountered in adults. In children the feet are more often involved than in adults.

Pellagra is not a very important cause of serious illness or death in children, but the common occurrence of this disease in children is a very important feature of the general problem of pellagra. In a population of 6,600 people in endemic foci of the disease in South Carolina, there were 882 females and 1,005 males under 10 years of age. During the two years 1912 and 1913 there developed in this population 91 new cases of pellagra and twenty-three of these new cases occurred in the female children and twenty-five in the male children. In the transmission from family to family the children seem to play an important part.

ASSOCIATION OF AMERICAN MEDICAL COLLEGES

Is It Desirable at This Time to Fix a Date for Two Years Preliminary College Work?

DR. EGBERT LE FEVRE, New York: It is unwise at present for this association to demand two years of college work as a minimum entrance requirement. We are just starting on the one-year college work requirement, and the medical schools are having difficulty in evaluating credentials and arranging for this work. The educational system in the majority of states is such that the prospective medical student after graduating from a high school cannot go into a university and get this one year of required college work. It was necessary for us to organize this special one-year course in order to meet the requirement. Are the difficulties of this one year to be simplified by demanding two years? In individual states and in individual institutions no doubt they will be, but I do not believe that as a college organization we are at present in a position to demand two years of college preparation. The question arises, Are we demanding this work to unburden the curriculum or from a purely cultural point of view? If we are doing it because we want men better prepared to enter on the study of medicine, then one year of the intensive course is sufficient. If, on the other hand, we are considering it from the cultural side, then two years are desirable, provided that the undergraduate schools will arrange their freshman and sophomore courses to meet the requirement. We must have the cooperation of the undergraduate colleges. In New York the high-school student must have an elementary course in chemistry, physics and biology to enter on the study of medicine; therefore, we are able to arrange our courses to give him advanced chemistry, biology and physics. The man who comes from other states where the high schools do not give this work must take it elsewhere. The education department evaluates our one year of college work, and students who are matriculating in our schools must have the medical student's certificate and the endorsement on this certificate by the education department that he has completed one year of college work, so that the education department gives official recognition to our entrance requirements.

DISCUSSION

DR. RANDOLPH WINSLOW, Baltimore: We are not in position at present to specify any time at which more than one year of college work may be demanded, certainly not within the next four years.

DR. E. P. LYON, Minneapolis: We are making an educational experiment in this one-year plan, and it would be folly to interrupt it before a reasonable conclusion can be drawn from it.

DR. JOHN M. DODSON, Chicago: It is not possible to administer satisfactorily one year devoted to chemistry, physiology and biology, and it is easy to do it in two. It will not diminish the number of students.

DR. B. D. MYERS, Bloomington, Ind.: There may be a good deal of dissatisfaction during the next two years with the one year of college work. In Indiana nearly all the colleges have adjusted themselves to the two-year requirement. I agree with Dr. LeFevre, however, that this is not the time to require two years of college work by all schools in the association. I believe that it would be wiser to wait.

DR. FREDERICK P. GAY, Berkeley, Cal.: Two years is the necessary period for the introduction to science that is required, because the work of three laboratory subjects is too much for one year.

DR. A. L. GRAY, Richmond, Va.: The colleges in our section are absolutely unable to give the required work in one year.

We cannot enforce a two-year requirement for the coming session, but we propose to make the announcement in the next catalogue.

College Requirements for Admission to Medical Colleges

MR. KENDRIC C. BABCOCK, Chicago: Little needs to be said about the one-year college-work requirement. The fundamental question in interpreting this year's work under present conditions is essentially of the equipment, of teachers and of laboratories. Additional requirement of a second year of college work gives opportunity for the student to pursue his three required sciences with more leisure, and with more definite coordination with other subjects as well as with somewhat more advanced courses. Encouragement should be given to students to take subjects in these two years which would liberalize and socialize the prospective candidate for the practice of medicine. An interpretation of the two-year college requirement for admission must, therefore, be based on this larger idea of the purpose of added time. Breadth and sanity in preparation might well be the motto before those who devise the entrance requirements to the medical school.

Conditions at entrance to a medical school should be permitted only so far as they conform to these three principles: 1. The condition should be such that it may be made up within one year without interference with prescribed work of the first year of the course. 2. The condition should not be so large in quantity as to disarrange the schedule of professional work of the first year in order to make it up. 3. The condition should not be in the whole of any one of the prerequisite science subjects. Applying these principles, it would seem fair to the student and his future work to permit him no more than four semester hours, whether he entered on the one-year or two-year collegiate basis. This means four hours of conditions in a minimum requirement of thirty semester hours for a year of college work, or four hours of conditions in a minimum of sixty semester hours for two years of college work. Such conditions might represent a half year of one of the fundamental sciences or a half year of an elective subject. Such handicap could be overcome by work in a summer school or by a course carried on during a semester or the whole year in the liberal arts department of the university in which the medical student may be registered.

Who Shall Evaluate Entrance Credentials?

MR. ISAAC L. OTIS, Entrance Examiner for Maryland: The work of evaluation of credentials should be done by an agency entirely independent of all schools. This should be a state bureau taking care of all the professions, the head of which should receive an adequate salary. The ideal will be attained when there is a national bureau of the highest standard, whose information is complete aand whose certification cannot fail to command respect. My experience has convinced me of the absolute necessity of a national bureau of professional education and licensure. Such a bureau should be a part of a national department of education, with its head a full cabinet officer. The work of such a bureau should be conducted on a plane so high that its certification would be a recognized standard anywhere.

The Student Who Fails and the Student Who Migrates

DR. JOHN L. HEFFRON, Syracuse, N. Y.: A student on matriculation complies with the requirements of the college which are in force at the time of his entrance. If at the end of the year he fails to meet the standard of attainment set up by the college, he is required to repeat the work of the year. If the college in the meantime has raised its standard for entrance, it in no way affects the student of a previous year who has failed. Repetition of the work is the penalty for failure, not for having presented an acceptable preparation. If he has exhibited a lack of ability, he should be advised to give up medicine. If a good student because of illness or some other equally valid reason is unable to do the work and must repeat, if he is a first- or second-year student, he is assigned definite problems to work out under the guidance of the heads of the various departments, with the understanding that he must take the usual practical examination given to the regular class. That robs the course of the monotony of repetition.

Our rule for admission to advanced standing is that the applicant must present evidence of a preparation for the medical course identical to that which the class which he desires to enter was required to have, and he must pass examinations in all the subjects of the course which that class has already covered. The graduate in medicine who wishes to receive our degree is given the rating which the board of regents gives his college, provided his preparation for medicine equaled our requirements at the time of his entrance on the study of medicine. If his college is a registered college, he is credited with the four years' work, and if he has passed the state licensure examination, we accept that in lieu of our own examination. If he has not passed a licensure examination, we require him to pass examinations on all the subjects of the course, and to receive our degree he must in addition spend a year in college and take work equivalent to the work of our senior year.

Discussion on Entrance Requirements

DR. A. ROSS HILL, Columbia, Mo.: A student who enters a college of science or arts from the high school with a deficiency in the first or second year has a better opportunity to make it up than has the medical student, because the course is largely elective for the former, while the latter must enter on a hard-and-fast curriculum. Our university, since adopting the two years' advanced standing, has come to the conclusion that it will have to shut down on admitting students with conditions. For one year we have had an officer who evaluates credentials in all departments, which we find to be very satisfactory. I should object strongly to a board of education having anything to do with the administration of admission to a professional school, and I think that probably would be the direction in which we would drift if we had this evaluation done by state officials.

DR. EGBERT LE FEVRE, New York: Entering on the medical course with conditions from the college is a very simple matter when a man comes from an institution affiliated with the medical school; but what about the man who comes from a distant college? Who is to examine him when he comes with conditions? Certainly not the professors of the medical school.

DR. WILLIAM PEPPER, Philadelphia: During the past three years we have not admitted a student with a condition in any of the sciences. With regard to the adjustment of credentials, we have a council on admission to the medical school consisting of three college professors. On the Atlantic coast we have many men coming from foreign countries, and we have no reliable way of adjusting their credentials. The idea of a national central board to settle such matters seems to me a very good one.

DR. SENECA EGBERT, Philadelphia: No school in Pennsylvania will hereafter be permitted to admit a student with a condition of any kind, by ruling of the bureau of licensure.

DR. W. J. MEANS, Columbus, Ohio: The most difficult problems present themselves to the independent medical school or the school which is affiliated with or a part of a university, where the arts and science department is not very strong. The academic department is scarcely in position to evaluate credentials properly. In Ohio the evaluation of the high-school credentials is done under the direction of the State Medical Board, and I think it is generally conceded that it is well done. The basis is fifteen units and no conditions. The evaluation of the additional college credential is taken care of by the individual universities, and satisfactorily so. I believe that this association should demand, where there is no state control, that there should be some regulation by which these credentials are examined by and under the authority of the board of medical examiners of the state in which the college is located, or by the authorized examiner or some other authority, as specifically set forth in the constitution of this association. It is difficult for a student to go on with his medical course with science conditions, because he

cannot make them up during the college year. If we do allow conditions, we must make provision for their removal.

MR. FRANK LANDACRE, Columbus, Ohio: The question is, Who shall adjust the credentials, the medical faculty or the entrance board of the university? In Ohio we have no entrance board. The students are registered by a subofficer. The deans have nothing to say. The medical men must make some rules as to entrance conditions. If you are going to accept the colleges of the North Central Association or the Ohio College Association or any other recognized association, say so, and we will accept your ruling. Otherwise, the university authorities must use their own judgment in the matter. State boards and college authorities must be given definite standards for working.

DR. BROWN AYRES, Memphis, Tenn.: Universities are trying to get in line with the requirements of the various national bodies. We must be specific in our requirement, name the subjects, the credits, the minimum, and then rest for a sufficient number of years to get the schools accustomed to the idea.

DR. B. R. SHURLY, Detroit, Mich.: What are we going to do with the men who come from schools that offer no biology? Are we going to turn them away, or shall we be allowed to accept a biologic certificate from the advanced course in our high schools? Are we allowed to accept men who have taken a postgraduate course in the high school which provides such a course?

DR. IRVING S. CUTTER, Lincoln, Neb.: In order to crystallize this discussion, I would move that a committee of three be appointed to draw up resolutions covering these points: first, the evaluation of the college year, and, second, the granting of conditions in either preparatory or college work. [Such a committee was appointed, reported, and its report was accepted.]

MR. JOHN LOMAN, Entrance Examiner for Pennsylvania: All papers presented for admission to the first year of a course in medicine should be adjudicated by state authorities. The state demands certain preliminary requirements, and the state should see to it that the applicant can meet the requirements. The state can establish a bureau and develop it to a high degree of efficiency, entirely free from political influence. It should be informally articulated with similar bureaus in other states, with the United States Department of Education and the United States Consular Service, so that credentials from foreign countries could be evaluated properly. We want efficiency and we may safely trust the state to see that efficiency is obtained.

Report of Committee on Medical Research

DR. EUGENE L. OPIE, St. Louis: The committee urges on the medical schools the wider use of post-mortem examination as a means of increasing the value of clinical practice, teaching and investigation. The committee also recommends the endorsement of the resolution adopted by the Federation of American Societies for Experimental Biology, Dec. 31, 1913.

State Board Examinations

DR. H. U. WILLIAMS, Buffalo, N. Y.: My experience as an examiner has convinced me that students have a superficial knowledge of facts. They fail to grasp principles, and quiz compends or quiz classes are resorted to frequently in preparation for examination. In order that methods of teaching may be made effective, the knowledge of facts required of students should be selected carefully and limited to those that are essential. The remedy lies in reducing the importance of written examinations and in making practical tests more important.

Talking.—People who are clumsy in the use of spoken language try to make good their deficiencies by more or less grotesque gestures, emphasis and attitudes. The symbolic act is then evidence partly of ineptitude. But, on the other hand, a man's acts may beautifully convey what words are too poor to express.—Cabot: What Men Live By.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Tropical Diseases and Preventive Medicine, New Orleans

February, I, No. 8, pp. 539-602

1 Cultivation of Malarial Plasmodia in Vitro. C. C. Bass, New Orleans.
2 *Emetine in Amebic Dysentery. W. Allan, Charlotte, N. C.
3 Annual Report of the Hot Springs, Arkansas, Health Department. W. H. Deaderick, Hot Springs, Ark.
4 *Cultivation of the Bacillus of Leprosy; A Review. P. G. Woolley, Cincinnati.
5 Case of Dhobie Itch (Tinea Cruris). W. L. Culpepper, New Orleans.

2. Emetin in Dysentery.—From Allan's brief summary of the literature it is evident that, with few exceptions, everybody has reported simply immediate results, and sufficient time has not yet elapsed to tell whether or not these cures are permanent. At present emetin hydrochlorid and hydrobromid are the salts used. The size of the dose has varied from ¼ to 6 grains. It is being given by mouth, by rectum, subcutaneously and intravenously. It is being given daily in single or several doses, on consecutive days, on alternate days, and irregularly. Most observers have discontinued the use of the drug as soon as the clinical symptoms have cleared up, or shortly after the amebas have disappeared from the stools.

Allan's limited experience has served to convince him that small doses, repeated daily or almost daily, for a few days, are not sufficient to eradicate the ameba, for more than half of his cases have relapsed within the first year after treatment. Allan thinks it better to give maximum instead of minimum doses; that is, 2 to 3 grains instead of ½ to 1 grain. The necessity for intermittent treatment is emphasized. Rest in bed and restricted diet seem unnecessary except in the severest cases.

4. Cultivation of the Bacillus of Leprosy.—A review of the literature convinces Woolley that each investigator believes he has cultivated the cause of leprosy, and that none of them have proved it, and further that a deal of work remains to be done.

Annals of Surgery, Philadelphia

March, LIX, No. 3, pp. 321-464

6 *Prostatism. H. Wade, Edinburgh.
7 *Suprapubic vs. Perineal Prostatectomy. J. B. Deaver, Philadelphia.
8 Prostatectomy in General Surgical Practice. H. Lilienthal, New York.
9 *New Method of Exposing Lower End of Ureter. E. S. Judd, Rochester, Minn.
10 Rectovesical Echinococcus Cyst. J. B. Squier, New York.
11 Rupture of Penis. A. O. Wilensky, New York.
12 Post-Operative Ileus. A. McLean, Detroit.
13 Intestinal Obstruction Resulting from Malignant Tumor of Retained Testis Abdominis. T. S. Tirumurti, Madras, India.
14 Obstructive Pelvic Lesions Associated with Chronic Diverticulitis. Report of Five Cases. G. E. Shoemaker, Philadelphia.
15 Case of Arthroplasty on Knee-Joint. H. R. Owen, Philadelphia.
16 Paralytic Toe-Drop. Putti's Operation for Its Relief. J. T. Rugh, Philadelphia.

6. Prostatism.—Three outstanding varieties of disease, Wade says, lead to prostatism: (*a*) Prostatic hypertrophy or chronic lobular prostatitis; (*b*) prostatic fibrosis or chronic interstitial prostatitis; (*c*) prostatic carcinoma. The first was present in 82 per cent. of the specimens examined by Wade. Chronic lobular prostatitis is in his opinion a senile hyperplasia, an aberrant overgrowth of tissue that is not the result of the appearance of an independent new growth, but is liable to develop into the same. Chronic lobular prostatitis in the majority of cases produces prostatic hypertrophy. It virtually always develops in the middle lobe and is almost uniformly confined to the middle and lateral lobes. The gland in consequence undergoes changes that usually permit of its easy removal by suprapubic prostatectomy. Chronic lobular prostatitis may develop in and be confined to the anterior lobe, this being noted by Wade in one case. Chronic lobular prostatitis may cause prostatism without enlargement of the organ, intravesical herniation or complet false capsule forma-

tion. In these cases the performance of suprapubic prostatectomy is difficult and dangerous.

The successful performance of suprapubic prostatectomy, in Wade's opinion, depends on the presence of an advanced type of prostatic hypertrophy due to chronic lobular prostatitis. The recognition of this is clinically frequently very difficult. When a patient with this advanced type of disease is operated on his urinary tract and general health have usually suffered serious damage from the disease. It is therefore unjustifiable to delay operation in an early case of chronic lobular prostatitis in order to permit of the gland undergoing those hypertrophic changes that facilitate its easy removal by suprapubic prostatectomy.

The mortality attending suprapubic prostatectomy is mainly due to the impaired health of the patient prior to operation. The actual cause of death in such cases is usually a local infection arising out of the wound inflicted. The operation of suprapubic prostatectomy by blind enucleation, Wade says, is unsuitable in cases of prostatism due to other causes than advanced chronic lobular prostatitis. Perineal prostatectomy is a most suitable operation for such cases. Perineal prostatectomy permits of the removal of the disease when its presence is diagnosed in all cases. It is, therefore, at present the operation that offers the best prospect of further advance in the treatment of prostatism. For its successful performance an accurate knowledge of the anatomic structure and relationships of the prostate are necessary as well as an understanding of the pathology of the disease. The suprapubic transvesical method of prostatectomy by visual dissection offers the prospect of developing into a method of treating prostatism that may ultimately warrant its adoption in a large number of cases.

Chronic interstitial prostatitis is best treated by division and removal of the constriction by the transurethral route. Prostatic carcinoma may be in an early case clinically indistinguishable from hypertrophy due to chronic lobular prostatitis. This fact is therefore a further reason for early operation in all such cases. Prostatic carcinoma when recognized clinically may be successfully treated by excision of the gland in suitable cases.

7. **Suprapubic vs. Perineal Prostatectomy.**—The advantages of the suprapubic over the perineal operations Deaver says are as follows: The approach to the prostate is simple and practically bloodless. The enucleation of adenomatous growths is accomplished with ease. The working field is large and under perfect control. The prostate is accessible and can be made more so by digital pressure on its rectal surface and without the danger of injury to the bladder from the use of tractors necessary in the perineal operation. The muscular control of the bladder is not disturbed, since the internal sphincter may be avoided and the compressor urethra lies outside the line of cleavage. Incontinence is therefore less frequent following this technic. Permanent fistulas are less frequent after the suprapubic operation. They never occur in fact if the urethra is bougied. Stones can be more easily removed. Sexual potency is maintained as frequently after the suprapubic operation as after the perineal, and the question of sterility is rarely of any consequence. The mortality is, in properly selected cases, no greater and the percentage of uncomplicated cures is larger.

9. **Method of Exposing Lower End of Ureter.**—The method described by Judd of approaching the lower part of the ureter has been employed in operating on six cases. The first patient operated on was a boy 18 years of age with diverticulum of the bladder. A median suprapubic incision was made from the symphysis to the umbilicus, extending through the fascia between the recti muscles down to the peritoneum. The peritoneum was not opened but was brushed back from the fundus of the bladder in the usual way, the bladder lifted well forward and opened after the suprapubic space had been packed off with gauze. The bladder was opened in order to explore and pack the diverticulum to facilitate in removing and also to determine if possible the relationship of the diverticulum and ureter so that the ureter would not be injured in removing the pouch. This, however, could not be satisfactorily accomplished from within the ladder, and with the wall of the left side of the bladder held firmly by an assistant, dissection was carried down to the base of the bladder, exposing and freeing the ureter for 2 or 3 inches. The ureter was held to one side while the diverticulum was separated from the surrounding fatty tissue and removed. The opening in the bladder was closed with the ureter in sight so that it could not be injured or its lumen interfered with. The entire wound healed practically by primary intention and the patient was up and around in ten days and made a complete recovery.

In the second and third cases the operation was performed for stones in the lower ureter. The ureter was exposed as in the preceding case with the diverticulum, except that the bladder was not opened. Besides these two cases of stone in the ureter and the one of diverticulum of the bladder, the method has been used to expose the ureter in three cases of extraperitoneal resection of the bladder for cancer.

Arkansas Medical Society Journal, Little Rock

February, X, No. 9, pp. 219-241

17 Importance of Lumbar Puncture in Diagnosis of Syphilitic Nervous Lesions. E. P. Bledsoe, Little Rock.

Boston Medical and Surgical Journal

March 5, CLXX, No. 10, pp. 333-368

18 Relation of General Hospital to Training School for Nurses. H. M. Hurd, Baltimore.
19 *Relationship between Epilepsy and Migraine. G. A. Waterman, Boston.
20 Roentgenographic Study of the Mastoid. O. A. Lothrop, Boston.
21 Laboratory Physiology in College and in Medical School. A. D. Bush, Burlington, Vt.
22 *Cancerous Ascitic Fluid in Uterine Carcinoma. R. M. Green and F. C. W. Konrad, Boston.

19. **Relationship between Epilepsy and Migraine.**—Waterman points out that one cannot review the statistics of various authors which describe the frequent interchange of epilepsy and migraine in different generations of the same family without being convinced that they indicate a definite relation between the two diseases. The cases seen by him in which substitution of one neurosis for the other occurs in the lifetime of the individual have convinced him of the existence of this relationship. He also believes that one must accept in considering the relationship of cases in which bromid treatment of epileptic fits changes the clinical picture of the attack from that of epilepsy to that of migraine. Symptoms of epilepsy in an attack of migraine may indicate the existence of a relationship between the two diseases in that attack, and need not, according to the dictum of Moebius, stamp that attack as essentially epileptic.

22. **Cancerous Ascitic Fluid in Uterine Carcinoma.**—Six patients were treated with cancerous ascitic fluid. An abundance of such fluid was obtained from one of the cases, and with this were made autogenous inoculations in her case, and heterogenous in five other patients. The treatment was continued in some instances over a period of four months. The reporting of this series of cases has been delayed for two years, in order that final results might be recorded, so far as obtainable. These cases all showed a slight and irregular elevation of temperature, which, however, bore no apparent relation in its oscillations to the injections of cancerous ascitic fluid, but seemed rather to be due to septic absorption from the ulcerating surface of the cancer.

The results obtained correspond with those obtained at the Massachusetts General Hospital. Three cases gave no apparent reaction; two patients, according to their own statement, were relieved of pain and improved in general physical condition; the third showed an apparent temporary relief of pain, and the tumor was apparently caused to slough, as evidenced by the tissue passed per vagina. Four of the patients died of the disease and apparently without retardation. Two others were discharged and lost to observation.

That the injections of serum do have a beneficial effect the authors believe can hardly be doubted, but whether this effect is due simply to a serum isotonic with the blood and acting as a stimulant or whether the reaction is specific, remains still to be proven. Patients with extensive cancer are usually

cachectic and ill nourished, and therefore it is easy to conceive that the injection of a highly nutritive fluid, saline and isotonic with the blood, would have a stimulating effect and aid in the improvement of the general condition, and thus probably also the resistance to the inroads of the cancer. The reaction, however, is slight, very temporary and shows slight or no specificity.

Bulletin of the American Academy of Medicine, Easton, Pa.

February, XV, No. 1, pp. 1-64

23 *Inheritance as a Factor in Criminality. E. R. Spaulding, South Framingham, Mass., and W. Healy, Chicago.
24 Influence of Publicity on Crime. W. B. Stewart, Atlantic City, N. J.
25 Physical Character of Crimes of the Alcoholic. T. D. Crothers, Hartford, Conn.
26 Relation of Physical Defect to Delinquency with Special Reference to the Hennepin County Juvenile Court. H. D. Newkirk, Minneapolis.
27 Truancy the Kindergarten of Crime. B. Hall, Milwaukee.

23. Inheritance as a Factor in Criminality.—In the study of 1,000 cases the authors can find no proof of the existence of hereditary criminalistic traits, as such. They do not absolutely deny such inheritance, but judging by their studies, they feel that careful observations elsewhere will bring forward evidence rather against such a theory than in favor of it. On the other hand, through studies of the eugenists, and advances in medical and psychologic knowledge, crime will be found indirectly related to heredity in ways most important for society to recognize. The underlying foundations of criminalism are the evils to combat. As existing apart from definite and discoverable mental, physical or environmental causations of criminalistic behavior, they regard the idea of bare criminalistic traits, especially in their hereditary aspects, as an unsubstantiated metaphysical hypothesis.

Colorado Medicine, Denver

February, XI, No. 2, pp. 31-68

28 Chronic Intestinal Stasis, "Autointoxication" and Subinfection. J. G. Adami, Montreal.
29 Traumatic Sarcoma. O. M. Shere, Denver.

Delaware State Medical Journal, Wilmington

January, V, No. 2, pp. 1-26

30 Surgical Treatment of Tuberculosis and Other Infections of Joints. J. J. Jones, Wilmington.
31 Two Peculiar Cases. R. B. Hopkins, Milton.

Illinois Medical Journal, Chicago

March XXV, No. 3, pp. 137-212

32 Case of Membranous Pericolitis—Diagnosis Confirmed by Roentgenography and Laparotomy. A. P. Heineck, Chicago.
33 Injections of Alcohol for Pain in Tubercular Laryngitis. D. A. Vanderhoof, Colorado Springs, Colo.
34 Some Complications in Obstetric Practice. A. Hall, Mt. Vernon.
35 Obstetrics in General Practice. F. D. Hollenbeck, Chicago.
36 Who Will Discover the Causes of Youthful Insanity? B. Holmes, Chicago.
37 Infantile Cerebral Palsies. H. G. Hardt, Chicago.
38 Forty Years' Experience in Construction and Administration for Insane in Middle West. R. Dewey, Wauwatosa, Wis.
39 Need of Plan to Eliminate Mentally Unfit from Service in Transportation Companies. T. Diller, Pittsburgh, Pa.
40 Causes of Acquired Insanity. J. C. King, Atlanta, Ga.
41 Acute Alcoholic Insanity. W. F. Lorenz, Mendota, Wis.
42 Origin of Boas-Oppler Bacillus in Gastric Carcinoma. A. E. Gammage, Chicago.
43 *Simple Method of Preparing Catgut. E. M. Sala, Rock Island, Ill.
44 Prevention of Blindness Caused by Ophthalmia Neonatorum. A. L. Adams, Jacksonville, Ill.

43. Simple Method of Preparing Catgut.—The method Sala offers is the use of two different solutions, one for sterilization and one for preservation. The clean gut, which has been already prepared for sterilization, is twisted or rolled in lengths suitable for suture material and placed in glass-stoppered bottles containing full strength Harrington's solution. The gut is left in this solution for ten hours. It is then poured off and the sutures washed in Ochsner's solution. Sutures are then transferred to bottles containing Ochsner's solution, which is as follows: Iodoform, 1 part; ether, 5 parts; alcohol, 14 parts. Sutures remain in this solution until needed for operations.

The gut becomes well impregnated with iodoform and is pliable and nice to work with. It should not be left in iodoform solution much over three months, because the iodin ultimately destroys its tensile strength, but Sala has used some gut that has remained in the solution as long as twelve months, and it still was good, strong gut.

Journal of Experimental Medicine, New York

March, XIX, No. 3, pp. 223-316

45 *Relation to the Blood and Virus of Epidemic Poliomyelitis. P. F. Clark, F. R. Fraser and H. L. Amos, New York.
46 Relation between the Fat Content of the Bile and Fatty Changes in the Liver. E. R. Le Count and E. R. Long, Chicago.
47 *Soaps as Ferment-Inhibiting Agents. J. W. Jobling and W. Petersen, Chicago.
48 *Ferment-Inhibiting Substances in Tubercle Bacilli. J. W. Jobling and W. Petersen, Chicago.
49 *Nitrogen Retention in Blood in Experimental Acute Nephritis. H. T. Karsner and W. Denis, Boston.
50 *Nitrogen Retention Following Repeated Injections of Nephrotoxic Agents. H. T. Karsner and W. Denis, Boston.
51 *Specificity of Cytotoxins. R. A. Lambert, New York.
52 An Experimental Study of Histogenesis of Miliary Tubercle in Vitally Stained Rabbits. H. M. Evans, F. B. Bowman and M. C. Winternitz, Baltimore.
53 Indophenoloxydase Content of Tissues from Rabbits Infected with Pneumococcus. F. Mediglreceanu, New York.
54 Comparative Study of the Rate of Proteolysis of Tissues Obtained from Rabbits Infected with Pneumococci and of Tissues from Normal Rabbits. F. Mediglreceanu, New York.

45. Relation to the Blood and Virus of Epidemic Poliomyelitis.—Specimens of human blood taken by the authors during the paralytic stage of poliomyelitis and post mortem have proved not to be capable of infecting *Macacus* monkeys. Specimens of monkey blood taken at various stages of experimental poliomyelitis have not proved as a rule to be capable of infecting monkeys. In a single instance, among ten tests, infection was secured with a specimen of blood removed at the beginning of the paralysis on the seventh day following an intracerebral inoculation.

When suspensions of the spinal cord from a paralyzed monkey have been injected into the brain, or simultaneously into the brain and spinal canal, the blood removed from one to forty-eight hours later failed to cause paralysis after intracerebral injection.

When large volumes of active filtrate are injected into the circulation the blood remains infective for seventy-two hours at least, but may be no longer infective after ten days, when the paralytic symptoms first appear. When, however, the filtrate is injected in smaller amount or when a filtrate of a less active virus is employed in large quantities, the blood either fails to convey infection or conveys it irregularly. It is only when overwhelming quantities of an active virus are injected into the blood that paralysis results. The injection of moderate doses is not followed by paralysis, although the virus may still be detected in a blood-sample twenty-four hours after the injection.

The existence of a mechanism capable of excluding the virus within the blood from the central nervous organs is therefore inferred. Infection is accomplished far less readily through the circulation than by means of the more direct lymphatic and nervous channels of communication with the central nervous system. Several series of feeding experiments conducted with the biting stable fly (*Stomoxys calcitrans*) resulted negatively.

47. Soaps as Ferment-Inhibiting Agents.—Jobling and Petersen found that sodium soaps prepared from olive oil, croton oil, cod-liver oil, linseed oil, etc., have the property of inhibiting the action of trypsin and leukoprotease, and that the activity of these soaps is dependent on the degree of unsaturation of the fatty acids and is in proportion to their iodin value. Saturation of the acids with a halogen (iodin) causes a loss of the property. Soaps of the saturated fatty acids tested did not have this influence on ferments.

48. Ferment-Inhibiting Substances in Tubercle Bacilli.—Jobling and Petersen demonstrated that tubercle bacilli contain unsaturated fatty acids which when saponified have the property of inhibiting the action of trypsin and leukoprotease. In proportion to their iodin value these soaps are more active as inhibiting agents than the soaps prepared from linseed, olive and cod-liver oils. The activity of the soaps is dependent

on the presence of unsaturated carbon bonds. Saturation of the soaps with iodin destroys their inhibiting action. The authors suggest that soaps probably play an important part in the production of the condition known as caseation in tuberculosis.

49. **Nitrogen Retention in Blood in Experimental Acute Nephritis.**—The interpretation of these experiments by Karsner and Denis appears to throw more stress on tubular change as determining nitrogen retention.

50. **Nitrogen Retention Following Repeated Injections of Nephrotoxic Agents.**—By means of repeated injections of uranium nitrate Karsner and Denis produced in the cat a subacute or chronic nephritis which can progress to a fatal termination and show in its course increased accumulation of non-protein nitrogen in the blood. This nephritis differed only slightly from the spontaneous chronic nephritis of the species. Repeated doses of diphtheria toxin produced a subacute form of nephritis with only temporary or slight retention, but nevertheless anatomically a well-defined nephritis. The spontaneous nephritis studied resembled more closely that produced by uranium nitrate than that produced by diphtheria toxin, both histologically and from the standpoint of blood analysis.

51. **Specificity of Cytotoxins.**—The plasma of guinea-pigs treated by Lambert by injections of rat sarcoma exhibited a toxic action in tissue culture preparations on the cells of both rat sarcoma and rat embryo skin. Similarly, the plasma of guinea-pigs immunized by injections of rat embryo skin was toxic for cells of both types. Injection of rat blood immunized against both sarcoma and embryo skin, although not so strongly as injections of the two tissues. Guinea-pigs receiving injections of either chick embryo heart or intestine developed cytotoxic substances for both of these tissues. These findings are interpreted by Lambert as tending to show that cytotoxins formed after the injection of different body tissues into a foreign species are to no extent specific for the tissues injected.

Journal-Lancet, Minneapolis

March 1, XXXIV, No. 5, pp. 121-146

55 Interrelationship of High Blood-Pressure and Renal Disease. E. L. Tuohy, Duluth.
56 Accident Neurosis. J. M. Lewis, Minneapolis.
57 Chronic Multiple Arthritis. E. S. Geist, Minneapolis.
58 Gastric and Duodenal Ulcer; Recognition and Treatment. T. W. Stumm, St. Paul.
59 Meningitis Following Measles and Pneumonia, Ending in Recovery with Multiple Abscess Formation. J. Farrage, Deering, N. Dak.

Journal of Nervous and Mental Diseases, Lancaster, Pa.

February, XXXXI, No. 2, pp. 65-135

60 Silas Weir Mitchell: His Place in Neurology. C. K. Mills, Philadelphia.
61 Cephalograph: New Instrument for Recording and Controlling Head Movements. A. Knauer and W. J. M. A. Maloney, New York.
62 *Experimental Study of Intraneural Injections of Alcohol. A. Gordon, Philadelphia.

62. **Experimental Study of Intraneural Injections of Alcohol.**—In his experiments Gordon found that there is a difference in histologic changes when alcohol is injected into a motor, a sensory or a mixed nerve. A motor nerve is considerably less influenced by the intimate contact with alcohol than a sensory or a mixed nerve. Functional recovery follows in cases of injections into a motor nerve. In cases of sensory or mixed nerves, persistent sensory, trophic and motor disturbances follow injections of alcohol. In cases of motor nerves the gross nerve-bundles are not affected. Only the perineural connective tissue suffers, but then a condition of repair is evident in cases of long standing.

In cases of sensory or mixed nerves the histologic changes are very conspicuous, not only after recent injections (nine days) but also long after the first injections (twenty-nine days). Not only the nerve-bundles themselves but also their respective ganglia (gasserian and spinal), show distinct evidences of degenerative changes. In therapeutic management of affections of nerves, Gordon warns that the above difference in the susceptibility of motor and sensory nerves to the effect of alcohol must be borne in mind. Otherwise irreparable damage may be done to muscles and limbs supplied by those nerves.

Kentucky Medical Journal, Bowling Green, Ky.

February 15, XII, No. 4, pp. 131-166

63 Some Experience with Phylacogens. O. W. Doyle, Louisville.
64 *The Cause of Inguinal Hernia, with Special Reference to Relation of Long or Main Axis of Abdomen to Its More Frequent Occurrence on Right Side. F. T. Fort, Louisville.
65 Putrefactive Phlegmon. C. G. Forsee, Louisville.
66 Councilors in County Organization. C. Graham, Henderson.
67 Necessity of County Medical Societies. B. S. Rutherford, Bowling Green.

March 1, XII, No. 5, pp. 167-188

68 *Diagnosis and Medical Treatment of Gastric and Duodenal Ulcer. C. G. Lucas, Louisville.
69 *Diagnosis and Indications for Operation in Gastric and Duodenal Ulcers. A. D. Wilimoth, Louisville.
70 Diagnosis in Genito-Urinary Diseases; Its Neglect; Its Urgent Necessity; Methods by Which Its Requirements May Be Met. B. Lewis, St. Louis.
71 Osteomyelitis. A. W. Davis, Morton's Gap.
72 Early Diagnosis of Tuberculosis. T. C. Nichols, Morgan.
73 Pyemia. J. E. L. Harbold, La Grange.
74 Diagnosis, Quarantine and Treatment of Scarlet Fever. R. B. Cassady, La Grange.
75 Diagnosis of Appendicitis. R. B. Cassady, La Grange.
76 Acute Poisoning. J. T. Dixon, Owensboro.

64. **Inguinal Hernia with Reference to Long Axis of Abdomen.**—Fort concludes that all inguinal hernias are due to a congenital weakness. Right inguinal hernia is more frequent than left on account of the more frequent incomplete closure of the right inguinal canal caused by lack of pressure from behind and the right side of the pelvis being larger than the left. When there exists a congenital inguinal weakness plus a splanchnoptosis a very slight jar or misstep will cause a knuckle of bowel to descend into a patent opening, producing very little if any shock. If force enough could be applied to produce a traumatic hernia there would be great surgical shock immediately following. The peristaltic wave being from left to right, the larger side of the pelvis being the right, the attachment of the mesentery being from left to right and the left leaflet of the diaphragm being freer to act than either of the other leaflets, the long axis of the abdomen changes when force is applied from above from the central line of the body to a line which might be drawn from above downward from left to right.

68, 69. Abstracted in THE JOURNAL, Sept. 20, 1913, p. 989.

Lancet-Clinic, Cincinnati

February 18, CXI, No. 10, pp. 239-264

77 Non-Suppurative Diseases of Labyrinth. Von Eicken, Giessen, Hesse, Germany.
78 Clinical Significance of Diastolic Pressure Variations with Especial Reference to Hypertension and Cardiac Overload. W. J. Stone, Toledo.
79 Conservative Treatment of Urethral Stricture and Its Complications. R. W. Staley, Cincinnati.

February 21, CXI, No. 8, pp. 211-238

80 Roentgenologic Findings in Malignant Obstruction of Colon. J. T. Case, Battle Creek, Mich.
81 Teaching of Sex Hygiene in Our Schools. F. Heiermann, Cincinnati.
82 Painless Surgery—(Anocithesia). C. A. L. Reed, Cincinnati.

Medical Record, New York

March 7, LXXXV, No. 10, pp. 345-360

83 Roentgenographic Observations on Colonic Peristalsis and Antiperistalsis; Function of Ileocolic Valve. J. T. Case, Battle Creek, Mich.
84 Simple Subcutaneous Cut to Cure "Trigger-Finger" or "Snap-Finger." R. Abbe, New York.
85 *Bacterial Cause of Peritoneal Adhesions; the Bacillus Adhesioformis. A. Bassler, New York.
86 Sprain Fracture of Os Calcis. A. O. Wilensky, New York.
87 An Appliance for Introduction of Instruments into the Stomach. M. Einhorn, New York.
88 First Observed Cases of Friedreich's Ataxia in America. J. H. Kellogg, Battle Creek, Mich.
89 Quantitative Colorimetric Analysis in Aid of Clinical Diagnosis. R. Weiss, Basel, Germany.
90 Pathology, Etiology and Diagnosis of Typhoid. G. A. Rueck New York.

85. **Bacterial Cause of Peritoneal Adhesions.**—Bassler made studies in eleven patients who had been operated on in which extensive colonic adhesions were observed, and seven autopsies in which various parts of the gut were carefully sectioned, in all of which the bacteriology of the contents were studied. The organism he found and which he believes

has never been described heretofore is a Gram positive, which may be met with in three shapes, fusiform, sausage-shaped, and a few with square ends. In raw stool specimens a few of them show a spore at one of the ends, and some show a spore at both ends. It is about as thick as the Gram-positive cocci and not quite the diameter of the Gram-positive diplococci. It is about half the size of the *B. aërogenes capsulatus* but is not capsulated. Some of the forms, particularly those having rather square ends, are shorter and resemble those of the coccal type. Most of them have straight sides and cannot be confused with the saprophytic nodulated organisms nor the *B. putrificus*, which is narrower and longer. They occur singly but are only significant in a diagnostic sense when found in groups of a dozen or more, or in great numbers; in some instances there may be as many as a hundred to a field.

In every specimen they never represent the predominant organism of the stools or even those of the Gram-positive forms, and are easily overlooked unless a search for them is made. If a feces extract is made to which peptone and maltose has been added they grow best, but even here with great difficulty. They are not cultivatable by ordinary laboratory methods whatever medium is used and however it is manipulated, neither by the aerobic nor the anaerobic means. Either they are mostly dead when excreted, or, like many of the other intestinal bacteria, are not cultivatable by artificial means. The bacillus is not of the colon or Gram-negative group and is non-motile. It does not vary in size. It does not possess flagella. It is a most exacting anaerobe.

There is, however, a method which Bassler employed in studying it which answers to fair purpose, and that is to make a fluid mush of the stool in question with a normal saline solution by thoroughly macerating the stool in considerable normal saline solution. After a few hours, usually three, this fluid is centrifuged for the purpose of throwing down the solid particles of feces. The supernatant fluid is then passed through a Berkefeld filter until it is sterile of bacteria. Peptone and maltose are then added to it and the media rendered neutral in reaction with sodium carbonate. In this medium, under strictest anaerobic conditions, a sparse growth may be obtained. Bassler has named this organism the *B. adhæsioformis* (adhesion former).

Michigan State Medical Society Journal, Grand Rapids

March, XIII, No. 3, pp. 127-209

91 Transposition of the Uterus and Bladder in Treatment of Extensive Cystocele and Uterine Prolapse. T. J. Watkins, Chicago.
92 Artificial Pneumothorax in Pulmonary Tuberculosis. C. H. Johnston, Grand Rapids.
93 Pulmonary Tuberculosis and Pregnancy. B. R. Schenck, Detroit.
94 Diagnosis and Treatment of Chronic Non-Tubercular Joint Diseases (Rheumatism). F. C. Kidner, Detroit.
95 Suprapubic Prostatectomy. A. McLean, Detroit.
96 Discussion of Heart-Block with Report of Case. M. A Mortenson, Battle Creek.
97 Biologic Adaptations, Especially as to Fractures. A. S. Kitchen, Escanaba.
98 Typhoid Prophylaxis. R. C. Apted, Grand Rapids.

Military Surgeon, Washington, D. C.

March, XXXIV, No. 3, pp. 201-300

99 Concerning the Freedom of Cebu from Malarial Fever. R. Brooke, U. S. Army.
100 Physical Surveys as Measure for Further Systematizing the Work of Physical Improvement in the Service. H. H. Rutherford, U. S. Army.
101 Malingering. W. N. Bispham, U. S. Army.
102 Tropical Diseases in Philippine Islands. F. Schmitter, U. S. Army.

Mississippi Medical Monthly, Vicksburg

March, XVIII, No. 11, pp. 207-226

103 Serum Therapy. E. W. Hunter, Greenwood.
104 Typhoid Vaccine. J. W. Armistead, Sidon.
105 Tuberculin Therapy. L. F. Barrier, Greenwood.

Modern Hospital, St. Louis

February, II, No. 2, 69-134

106 Plans and Purposes of "Sea View" Tuberculosis Hospital. R. F. Almirall, New York.
107 The German Hospital—Its Relation to State and Public. Grober, Jena.
108 Admission of Patients, History Taking and Subsequent Care. K. H. Van Norman, Baltimore.
109 Causes of and Remedies for Unsatisfactory Hospital Architecture. T. J. Van Der Bent, New York.
110 Money Spent on Hospital Is for Cure of Patients. E. A. Codman, Boston.
111 Evolution of Policy Concerning Tuberculosis Hospitals. J. H. Gifford, Fall River, Mass.
112 Surgical Dressings, Their Preparation and Method of Distribution. E. A. Greener, Muskegon, Mich.
113 Record Keeping at Massachusetts General Hospital. B. Hollings, Cambridge, Mass.
114 Qualifications of the Modern Hospital Superintendent. A. B. Tipping, New Orleans.
115 Some Salient Points in the Construction of Hospitals. F. B. Martin, Washington, D. C.
116 Hospital Attitude Concerning Publicity Through Newspapers. G. P. Ludlam, New York.

New Orleans Medical and Surgical Journal

March, LXVI, No. 9, pp. 655-706

117 *Cesarean Section in Ante-Partum Hemorrhage. Report of Cases. W. Kohlmann, New Orleans.
118 Medical Aspect of Appendicitis. F. T. Gouaux, Lockport.
119 Fractures of Greater Tuberosity of Humerus. I. Cohn, New Orleans.
120 Pellagra. E. R. Harring, Natchitoches.

117. Cesarean Section in Antepartum Hemorrhage.—In cases of central or lateral placenta praevia, pregnancy being at or near term, living child, mother in good condition, cervix closed or only slightly dilated, Kohlmann claims cesarean section ought to be the operation of choice. Such a case came recently under his observation, and he advised the abdominal delivery, which was successfully carried out. Considering the high mortality of mothers and children, Kohlmann also advised the abdominal delivery, either conservative cesarean or Porro, in case of danger of postpartum hemorrhage, in a case which came under his observation as the safest procedure for the child, and most probably for the mother. The mother made an excellent recovery and left the hospital on the fifteenth day with a living child.

New York State Journal of Medicine

February, XIV, No. 2, pp. 57-118

121 Camphor in Pneumonia. W. J. Cruikshank, Brooklyn.
122 Intestinal Obstruction. W. B. Johnson, Batavia.
123 True Value of Operation for Cancer. E. M. Foote, New York.
124 Need of Individualization in Obstetrics. F. S. Newell, Boston.
125 Efficient Methods in Treatment of Placenta Praevia. J. A. Harrar, New York.
126 Incidence of Renal Involvement in Pulmonary Tuberculosis. H. S. Bernstein, Albany.
127 Cooperation of State Medical Societies in Public Health Education. E. S. Everhard, Dayton, Ohio.

South Carolina Medical Association Journal, Seneca

February, X, No. 2, pp. 395-438

133 Typhoid. R. A. Marsh, Edgefield.
134 Estimation of Blood-Pressure. E. S. Cross, Aiken.
135 Clinical Diagnosis of Nerve Syphilis. J. A. Hodges, Richmond, Va.
136 Surgical Clinics in Europe. H. A. Royster, Raleigh, N. C.
137 General Surgeon and His Work. R. T. Ferguson, Gaffney.
138 Treatment of Chronic Prostatic Obstruction. G. T. Tyler, Greenville.

Vermont Medical Monthly, Burlington

February, XX, No. 2, pp. 27-52

139 *Diagnosis of Septic Endocarditis. W. G. Thompson, New York.
140 Joint Tuberculosis. C. E. Wells, Burlington.

139. Diagnosis of Septic Endocarditis.—In many cases Thompson based the diagnosis of endocarditis on other findings than positive blood cultures, as follows: (1) The persistence of an irregular fever for many months, often being of low grade (from 100 to 101 F.), for weeks at a time, and sometimes with normal intervals of several days. (2) The absence of any other demonstrable lesions than those of the heart, and of any other adequate explanation of the fever than a protracted sepsis. (3) The finding of exceedingly minute petechiae, particularly about the neck and chest, or in the mucous membranes. (4) The development of loud harsh valvular murmurs, often in a heart which seemed normal under earlier examination, or which appears as accentuations of previously existing murmurs. (5) A condition of marked irritability of the heart as shown by overaction, and wide spontaneous fluctuations in the pulse-rate and character, irrespective of the temperature-curve. Thompson emphasizes the probability in many otherwise obscure cases of primary septic infection from a pyorrhea alveolaris.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

February 14, I, No. 2772, pp. 349-408

1 *Nature of Pregnancy and Its Practical Bearings. J. W. Ballantyne.
2 *Antenatal Hygiene: Its Influence on Infantile Mortality. A. Routh.
3 *Method of Producing Rapid and Fatal Intoxication with Bacterial Products. W. J. Penfold and H. Violle.
4 Radical Cure of Procidentia Uteri in Elderly Women. M. Mamourian.

February 21, I, No. 2773, pp. 409-460

5 *Appendicitis in Children. H. M. W. Gray and A. Mitchell.
6 Some Observations on Operative Treatment of Fractures by Metal Plates and Screws. W. Sheen.
7 *Congenital Deformity of Femur. C. Maguire.
8 *Case of Chimney-Sweep's Cancer and a Suggestion as to Pathology of Cancer. D. A. Crow.
9 Tuning-Fork and Stethoscope in Estimation of Abdominal and Thoracic Viscera. J. Cantlie.
10 Epidemic Cervical Adenitis with Cardiac Complications. S. T. Pruen.
11 Id. R. Kirkland.
12 Chronically Enlarged Tonsils and Their Treatment. W. J. Harrison.
13 Earache of Obscure Origin. W. Wilson.

1. **Nature of Pregnancy and Its Practical Bearings.**—A general survey of the whole field of pregnancy is made by Ballantyne. He discusses pregnancy regarded as parasitism; the pathological theory of pregnancy; pregnancy as harmonious symbiosis; the maternal response in pregnancy; pregnancy as physiology at high pressure; child-bearing and life insurance; a biological blood-test for pregnancy; the etiology of the maladies of pregnancy; the place of pregnancy and its diseases in the medical curriculum; pregnancy cases in hospital and private practice; prematernity wards and antenatal pathology; prematernity nurses; pregnancy and legislation; pregnancy and eugenics; pregnancy and feminism; pregnancy and high politics.

2. **Antenatal Hygiene: Its Influence on Infantile Mortality.**—The following suggestions are made by Routh: (1) Compulsory registration and notification of stillbirths, and, if possible, notification of abortions. (2) Arrangements by which every poor woman shall have medical supervision during pregnancy. (3) The provision of prematernity wards in every locality, with facilities for conveyance thereto of any pregnant woman found to require hospital treatment. (4) The provision in every general or lying-in hospital in our larger towns and in university clinics of antenatal research laboratories, and so far as may be practicable, of pathologic laboratories in every county and county borough under the supervision of the medical officer of health, where abortions and stillborn children and other products of conception can be systematically and scientifically examined by microscopic and bacteriologic methods, so that we may gradually arrive at a more certain knowledge of antenatal pathology. (5) The adoption of some means by which poor pregnant women can be financially assisted during the later months of pregnancy. This might be done by an extension of the maternity benefit for insured persons under the National Insurance Act, by which every pregnant woman may from the sixth or seventh month of pregnancy receive 5 shillings a week after voluntary notification of her pregnancy to the medical officer of health or her panel doctor. Routh also discusses the reduction of birth-rate; prevention of maternity; antenatal mortality; philanthropic measures; legislation.

3. **Method of Producing Rapid and Fatal Intoxication with Bacterial Products.**—Hort and Penfold (1912) showed that sublethal doses of *Bacillus typhosus* culture become lethal if injected in a large quantity of distilled water. They further showed that if the water be injected first into one vein, and the sublethal dose of culture subsequently into another vein, death results. Evidence is brought forward by Penfold and Violle to show that: The same augmenting effect of distilled water is obtained with cultures of *Vibrio cholerae* and many other organisms, and that it is not due to the original broth employed as the culture medium; it is obtained with cholera toxin or filtrate, and does not require the actual presence of organisms; in the case of *V. cholerae* death is frequently immediate, this immediate death suggesting analogies with the acutest anaphylactic intoxication; if the toxin be injected first and the distilled water two hours afterward, death may result immediately; certain toxic substances do not become more toxic on administration in large quantities of distilled water; lysis of the blood plays a part in the production of these effects.

5. **Appendicitis in Children.**—Out of a total of 200 cases of appendicitis in children under 13 years of age, 126 were admitted and operated on by Gray and Mitchell during an acute attack. The mortality in the acute cases was nineteen, or 15 per cent. This includes one death under an anesthetic. In the chronic and recurrent cases there was no mortality. Two deaths occurred from intestinal obstruction complicating appendicitis, two from subphrenic abscess (one empyema). The other fatal cases were cases of diffuse peritonitis or of multiple abscess. In these cases (with one exception) the symptoms had been present in some degree for several days before admission, and in all of them the patient's general condition at the time of admission was very bad. Two patients developed septic pneumonia several days after admission, and died. In a few cases recovery was complicated by pleurisy, with a moderate amount of effusion which cleared up. In one case a small interlobular empyema was discovered about a month after operation for acute diffuse peritonitis. No case of "ether pneumonia or bronchitis" occurred in the whole series, and no case of "delayed anesthetic poisoning." One case of acute intestinal obstruction occurred two days after operation for acute gangrenous appendicitis. A piece of omentum was found fixed by a fresh adhesion to the lower end of the ileum, and the bowel above this was widely distended. This was relieved by operation, and the patient recovered. The appendix was not removed in any case where there was an abscess adherent to the anterior abdominal wall, nor in several cases of localized abscess not adherent to the anterior abdominal wall. In all the other cases it was removed. In a small proportion of cases (about six), in which drainage had to be carried out for a prolonged period through a paracentral incision, a ventral hernia appeared some time after. A postoperative hernia has not been observed in any case in which a simple muscle-splitting side incision was used, nor in any case in which a paracentral incision was used and was sutured up at the time of operation. The authors emphasize that complaint of abdominal pain, especially when accompanied by sickness, should always provoke most careful inquiry and examination.

7. **Congenital Deformity of Femur.**—The knee-joint in Maguire's case was placed quite close up to the hip, as if there was no femur intervening between the upper end of the tibia and the acetabulum. The leg and foot of the short limb, although thin and small from want of use, were otherwise normal; the sole of the foot reached to about the level of the knee of the fullgrown limb, so that when the patient stood beside an ordinary chair she could support herself firmly by placing the short limb on the seat of the chair. The limb was about 17 or 18 inches shorter than the other; she had fairly good muscular power in it, and could move it about in any direction.

8. **Case of Chimney-Sweep's Cancer and Suggestion as to Pathology of Cancer.**—Crow suggests, among the theories which have been put forward to account for the phenomena of cancer growth as a result of soot irritation, there is one which attributes the new growth to the presence in the soot of a powerful deoxidizing chemical, such as sulphurous acid. If this be the true explanation, Crow says it brings sweep's cancer into line with cancer in other situations, for it is fairly obvious that cancer tends to arise in those tissues which from any cause lack a good supply of oxygen. The following examples are cited: Cancer arising in scar tissue is by no means uncommon; cases are met with in the scars left by

burns or disease, such as lupus; scar tissue in the cervix uteri is very frequently the seat of carcinoma; scars of gastric ulcers are liable to the disease. Again, cancer of the lip and tongue is always preceded by an overgrowth of fibrous tissue from chronic irritation, and this results in a deficient oxygen supply; in the same way cancer will occur in a gall-bladder which has been subjected to chronic irritation from gall-stones. Cancer develops in the sigmoid flexure of the colon after prolonged irritation of hard fecal matter, which must induce a fibrous overgrowth. In the breast fibrous tissue replaces secreting tissue, and the resulting tissues are but poorly supplied with oxygen. Primary growth in the lung, where oxygen abounds, is extremely rare; growth in the liver, which receives a large proportion of venous blood, is usually extremely rapid. Fatty tissue, which at no time of life is richly supplied with blood, is liable to give rise to fatty tumors at any age; whereas it is only when the nutrition of the skin and mucous membrane is becoming impoverished as regards oxygen supply, on account of changes due to degeneration of the vessel walls, that tumor growth in the epithelium is met. If the organism of cancer were demonstrated, and if it were shown to have anaerobic tendencies, the explanation of the predisposition of fibrotic tissues to new growth, in Crow's opinion, would become somewhat more easy to understand.

Clinical Journal, London

February 18, XLIII, No. 7, pp. 97-112

14 Common Errors of Diagnosis in Surgical Urinary Diseases. J. W. T. Walker.

Indian Journal of Medical Research, Calcutta

January, I, No. 3, pp. 385-588

15 Spleen Rate in London Schoolchildren. R. Ross, S. R. Christophers and E. L. Perry.
16 Dose of Venom Given in Nature by a Cobra at a Single Bite. H. W. Acton and R. Knowles.
17 Dose of Venom Given in Nature by Echis Carinata at a Single Bite. H. W. Acton and R. Knowles.
18 Report on Pilgrim Route to Badrinath. G. F. Adams.
19 On Vitality of the Cholera Vibrio Outside the Human Body. E. D. W. Greig.
20 *Experimental Researches on Etiology of Endemic Cretinism, Congenital Goiter and Congenital Parathyroid Disease. R. McCarrison.
21 *Nature of Kurloff Body: A Stage in Development of Eosinophil Leukocyte. H. W. Acton and R. Knowles.
22 *Period before Symptoms when the Saliva of an Animal Incubating Rabies is Infective. J. A. Cruickshank and R. E. Wright.
23 *The Causation of Goiter at Lawrence Military Asylum, Sanawar. R. McCarrison.

20. **Experimental Researches on Etiology of Endemic Cretinism, Congenital Goiter and Congenital Parathyroid Disease.**—The results of McCarrison's experiments may be summarized as follows: A small proportion (so far as can be ascertained from these data, 4 or 5 per cent.) of the offspring of goitrous parents are born cretins. Approximately 63 per cent. of the offspring of goitrous parents are born with congenital goiter. Approximately 32 per cent. of the offspring of goitrous parents are born with congenital disease of the parathyroid glands. Approximately 33 per cent. of the offspring of goitrous parents are born with normal thyroid and parathyroid glands. Where there is congenital disease of the parathyroid glands there is also congenital disease of the thyroid gland. In rare cases, however, the thyroid is less severely affected than the parathyroids. As congenital parathyroid disease is comparatively common among the offspring of goitrous rats, it is presumable that it is also comparatively common among the offspring of goitrous human beings. Congenital parathyroid disease is due to the action on the fetal gland of the toxic products of anaerobic organisms absorbed from the maternal intestine. Congenital goiter is due to the action on the fetal thyroid of toxic substances derived from the maternal intestine. Cretinism is due to the action on the fetal thyroid of toxic substances derived from maternal intestine. These substances, however, are capable of causing complete destruction of the thyroid gland in only a small proportion of cases. Lesser degrees of thyroid defect may account for the many varying degrees of cretinism met with in goitrous districts, while the parathyroid lesion may be responsible for the nervous symptoms from which many cretins suffer. McCarrison thinks that these results provide the experimental proof of the hypothesis which he put forward in 1908 as to the causation of congenital goiter and cretinism. In a paper, based on a study of 202 cases of cretinism, he drew attention to the intimate relationship which exists between goiter in the mother and the development of cretinism in the child, and indicated that under conditions of maternal thyroidal inadequacy toxic agencies of goiter, circulating in the maternal blood-stream, acted on the developing thyroid gland of the fetus and produced, in a proportion of cases, congenital goiter, and in a still smaller proportion the varying degrees of cretinism. He also drew attention to the previously undescribed nervous symptoms from which about one-third of all cretins suffer, and attributed the condition, which he named "nervous cretinism," to parathyroid defect. He concluded by stating that "the defect in cretinism is one of the whole thyroid mechanism of the parathyroids as well as of the thyroid gland. The diversity of symptoms is due to the extent to which the defect bears on the whole or part of that mechanism."

21. **Nature of Kurloff Body: Stage in Development of Eosinophil Leukocyte.**—The Kurloff body is found in the bone marrow of widely different animals, birds, amphibians and mammals, and is not confined to the guinea-pig. It cannot, therefore, Acton and Knowles claim, be a parasite, but rather a phase in the development of the eosinophil cell and is identical with the structure known as an archoplasmic vesicle. The Kurloff bodies are, therefore, the bone-marrow representative of the granules of the eosinophil leukocytes, and their appearance in the peripheral blood of the guinea-pig or other animal may be associated with helminthic infections. The Kurloff body is formed by the nucleolus in an exactly similar manner to other zymogen granules. Acton and Knowles confirm Ehrlich's and Kurloff's view as to the nature of these bodies, viz., that they contain *Secretin-Stoff*. The eosinophil granules are derived from the nucleolus and are of the nature of zymogen granules. The phases in development seen in these archoplasmic vesicles from the *Initial-Körper* to the formation of the spireme stage, coincide exactly with the stages described by E. R. Ross in the development of the *Lymphocytozoon cobayae;* and by Hartmann and Prowazek for *Chlamydozoa.*

22. **Period before Symptoms When Saliva of an Animal Incubating Rabies is Infective.**—Cruickshank and Wright found it difficult to infect rabbits and guinea-pigs either intramuscularly or subdurally with the salive of dogs or guinea-pigs in the presymptomatic stage of rabies. In one case the saliva of a dog was infective three days before the animal showed symptoms. Even when the symptoms of rabies have manifested themselves it is still difficult to demonstrate the infectivity of saliva experimentally. This suggests that the bites of rabid dogs, even under optimum conditions for infection, may not infect because the saliva is not virulent. Suspensions of the salivary glands themselves are much more certainly infective under experimental conditions than the saliva derived from them. This is more especially the case for the submaxillary gland. Negri bodies are not always demonstrable in the brains of experimental rabid animals, although they may become so after subpassage.

23. **Causation of Goiter at Lawrence Military Asylum, Sanawar.**—The results of McCarrison's enquiry show that goiter in Sanawar is due to the presence of living microorganisms in the water supplied to the children for drinking purposes, and that the disease can be eradicated by the provision of a chemically and bacteriologically pure water, perhaps a valuable point in the etiology of the disease. The possibility that most of the contamination in this water is derived from human fecal matter is brought out.

Journal of Laryngology, Rhinology and Otology, London

February, XXIX, No. 2, pp. 57-112

24 Peculiar Form of Hyperplasia of the Mucous Membrane of the Upper Respiratory Tract. A. L. Turner.
25 A Tumor of the Soft Palate Consisting Mainly of Salivary Gland Tissue. T. Guthrie.
26 Suspension Laryngoscopy in Children, with Particular Reference to the Treatment of Papilloma. W. Albrecht.

Archives générales de Chirurgie, Paris

January, VIII, No. 1, pp. 1-128

27 *Transfusion of Blood. L. Morel.
28 Congenital Varices on the Legs; Eleventh Case on Record. J. B. Tapie.
29 General Pathology of Joint Disease. L. Delrez.

27. **Transfusion of Blood.**—Morel gives a historical sketch of the subject and the approved technics, with summaries of the cases in which the method has been applied in France. The list includes 9 cases in gynecologic affections; 6 obstetric cases; 4 in which the transfusion was done after severe hemorrhage from the stomach; 3 of traumatic hemorrhage; 2 of hemorrhage from the bladder or hemorrhoids; 7 cases of pernicious anemia, and 4 cases in which blood from an immunized individual was transfused. There was 1 death in the first group and 1 in the obstetric group, but it occurred before the transfusion had been actually begun; 3 of the patients died in the hematemesis group and 1 in the 3 traumatic cases. The results were nil in 2 of the pernicious anemia cases and the other 5 patients in this group died. The case of severe hemorrhage from hemorrhoids is qualified as an actual resurrection after the transfusion, and 1 of the 2 typhoid patients recovered after transfusion of blood from immunized individuals, as also the 1 patient with uncontrollable vomiting of pregnancy, the donor a healthy pregnant woman.

Archives de Médecine des Enfants, Paris

January, XVII, No. 1, pp. 1-80

30 *Epidemic Poliomyelitis in Poland, 1911. M. de Biehler. Concluded in No. 2
31 *Scoliosis from Malformation of Fifth Lumbar Vertebra, and Its Treatment. M. N. Wilbouchevitch.
32 Intussusception in Children. J. Comby.

February, No. 2, pp. 81-160

33 *Subcutaneous Emphysema in Children. J. Comby.
34 *Significance for Prognosis of Discoloration Left by Blister. (Nouveau signe de pronostic: la coloration des ventouses). R. Vila Ortiz.
35 *Bronchiectasia and Inherited Syphilis in Children. J. Milhit.

30. **Epidemic Poliomyelitis.**—De Biehler reviews the history of the disease and discusses its various manifestations. It does not seem to have appeared in Poland until 1911, except for a few isolated sporadic cases. During 1911, 166 cases were reported, all in May, June and July, and most of the children affected were under 3; only ten were between 5 and 10 and only five above 10. The mortality was 3.6 per cent. The leukocytes generally dropped to an average of 3,000 during the stage preceding the paralysis, but after this was installed, the leukocytes usually rose a little above normal. The children recovered apparently completely in 45.3 per cent. of the cases. The necessity for strict isolation and disinfection is insisted on, and the importance of healthy carriers. In Poland the disease seemed to spread radially from small groups of cases.

31. **Curvature of the Spine from Deformed Lumbar Vertebra.**—A number of case-histories with illustrations are given to emphasize the importance of straightening the spine by having the child wear a thicker sole on one shoe, when the trouble is due to the malformation of some vertebra. One of the patients had left cervical curvature, right dorsal and left lumbar curvature, and the radiograms showed the fifth lumbar vertebra much deformed and the fourth consequently much tilted. To correct this tilting, the spine curved at the other points above. Ordinary measures for scoliosis can do no good in such cases, but if the sole of one foot is raised an inch or so, the tilting caused by the deformity is corrected and there is no need for the correcting curves above, so that the scoliosis is cured. In one such case the child wore a sole 1 cm. high and it answered the purpose perfectly, but as the child grew, the sole was not raised to correspond and the spine gradually developed a compensating curvature again. The height of the sole required must be tentatively determined and supervised. In this case the limb was 7.5 cm. shorter than its mate, but the sole required raising only to 3.5 cm. to straighten the spine. The radiograms taken at different periods and the final complete balance of the spine, although the pelvis still slants, confirm the correctness of the views advanced. The trouble in the lumbar vertebra may be a congenital deformity or the result of inflammation. The tilting of the pelvis by raising the sole is manifestly a lesser evil than the scoliosis, especially as the malformed vertebra and the adjoining ones may settle into normal positions in time under the influence of the correcting static forces.

33. **Subcutaneous Emphysema in Children.**—Comby reports ten cases of the soft swelling of the neck, not discolored and not tender, which is liable to result from any rupture in the air passages permitting entrance of air into the subcutaneous tissues. The emphysema may extend to the face, trunk and limbs, and it may subside spontaneously in a week or two, or it may entail suffocation; four of his patients succumbed in this way. He says that it is futile to attempt to act directly on the emphysema, and that revulsion is also useless. The dyspnea and asphyxia can be combated by inhalation of oxygen; a purge and enemas may also be indicated, with sedatives and digitalis or theobromin. The extremities should be kept warm.

34. **Aspect of Blister as Aid to Prognosis.**—Vila Ortiz gives a colored plate showing the aspect of the skin at the point where there had been a blister in six different cases. The aspect differs widely according as the person is healthy or has some mild disease or a toxic form of some acute infection. When a blister on the shoulder or chest left a mottled bluish or violet space, death was always the final outcome in these cases, although there was nothing else at the time to suggest the fatal termination two or three weeks later. On the healthy and with mild disease, the surface is as if stippled with fine pinkish or bluish points. When the mottling was coarse but scattered, and the pinkish background predominated, the disease ran a protracted course, but the patients finally recovered. Defective oxygenation of the blood is probably the cause for the coarse blue mottling. Twelve instances are given to show the instructive nature of this sign. The children all had pneumonia or other disease in which the blister had been applied for revulsion.

35. **Bronchiectasia and Inherited Syphilis.**—Milhit reports the cases of three children of 10 to 13 who had pronounced signs of bronchiectasia and a positive Wassermann reaction. Under treatment of the assumed inherited syphilis all the physical signs and general symptoms of both the dilatation of the bronchi and the syphilis entirely retrogressed. The cases illustrate anew the difficulty of diagnosing bronchiectasia in children. In quite young children the suspicion of bronchiectasia should suggest syphilis at once. In older children the dilatation seems to be subordinate to a bronchial or lung affection or tuberculous process, but even here syphilis may be a contributing factor, and specific treatment may work wonders.

Bulletin de l'Académie de Médecine, Paris

February 10, LXXVIII, No. 6, pp. 201-225

36 Cocain Psychoses. C. Vallon.

Bulletins de la Société de Pédiatrie, Paris

January, XVI, No. 1, pp. 1-70

37 *Vaccine Therapy of Typhoid in Children. L. Guinon and Malarte.
38 *Diagnosis of Appendicitis in Small Children. V. Veau.
39 Intravenous Treatment of Inherited Syphilis in Very Young Children. (Cent injections par les veines jugulaires et épicraniennes chez des nourrissons et des enfants du premier age, appliquées au traitement de la syphilis héréditaire.) G. Blechmann.

37. **Vaccine Therapy of Typhoid in Children.**—Guinon and Malarte applied Vincent's vaccine in eleven cases of typhoid in children from 4 to 13 years old, including three extremely severe cases. None of the patients died, but the vaccine therapy did not prevent intestinal hemorrhage nor abscess formation nor relapses. It seemed to shorten the course in the moderately severe cases and improve conditions in the bowels, but the usual measures had to be applied the same as otherwise.

38. **Appendicitis in Children.**—The first of the six little patients whose cases are described had ascarides and symptoms suggesting to her father, a physician, recurring appendicitis,

but the abdomen was never tender or stiff at any point. The only symptoms in the second case were brief pain at the umbilicus, rapid irregular pulse, slight fever and a mere hint of stiffness of the abdominal wall at one point. In the third case a bad general condition and fits of temper were the only symptoms. In another case an ascaris 5 inches long was found in the appendix, doubled once on itself. Two of the children were only 17 months old and the bad general condition and tenderness in the iliac fossa were explained by two calculi found in the appendix in one and thirty-two threadworms in the other. All the children were completely cured by removal of the appendix. None of them had ever complained of pain in the appendix region; the older children spoke of pain at the umbilicus. Even forcible pressure on the appendix did not elicit much pain, but when this was being done the children kicked less vigorously with the right than with the left leg. The face turned suddenly red when the finger touched the appendix in two of the younger children. The wall does not stiffen in children as in adults. Veau confesses that in these six cases the physicians almost scouted the idea of appendicitis, and it was the mother's insistence alone in most of them that led to the correct interpretation of the syndrome, the mothers having lost other children or friends from appendicitis. Veau is more of an advocate of early operation for children than for adults, as it is impossible to keep children still. He waits only two hours at most and operates then unless conditions show a turn for the better.

Grèce Médicale, Athens, Greece

XV, Nos. 19-24, pp. 37-48. Last indexed Dec. 6, 1913, p. 2108

40 *Five Years of Experience with the Wassermann Test. P. Descomps.

40. The Wassermann Reaction in Syphilis.—Descomps says that this test has been applied in 418 cases at the Paris Hôtel Dieu in the last five years. Comparative tests with the various modifications of the original technic have always demonstrated the superiority of the original Wassermann-Neisser-Brück technic. He cites Gougerot's compilation of 16,458 applications of the test with only twenty-one positive reactions among the 6,957 serums derived from persons supposed to be free from all taint of syphilis. Descomps states that all the patients with progressive paralysis gave a positive reaction, and 93.6 per cent. gave a positive reaction also in the spinal fluid. In tabes the findings were positive with the serum in only 68.5 per cent. and with the spinal fluid in only 53 per cent. The reaction was also positive with the serum from three patients with sclerosis in patches and one with Friedreich's disease, confirming P. Marie's assumption of the syphilitic origin of these affections. On the other hand, a positive reaction was never obtained with either blood or spinal fluid from patients with syringomyelia, neuritis, hysteria, genuine epilepsy or brain tumors. The reaction was positive in all of the patients with aneurysm of the aorta, and yet five in this group were utterly unaware of having ever contracted syphilis. In other valvular or vascular affections the response was positive in 91 to 91.6 per cent. and in 51 per cent. of the kidney cases. The positive response in seven puzzling cases of liver disease permitted effectual treatment, as also in a large number of surgical affections which simulated tuberculous, mycotic or malignant processes, including tumors in the parotid gland and testicles, ulceration of the tongue or rectum, and stricture of the esophagus.

Lyon Chirurgical

February, XI, No. 2, pp. 113-220

41 More Frequent Use of Gastrectomy Recommended in Cancer of the Stomach. X. Delore and P. Santy.
42 *Latent Congenital Subluxation of the Hip in Adults. (Des subluxations congénitales larvées de la hanche chez l'adulte.) M. Gangolphe and L. Plisson.
43 *Gastric Crises not Caused by Tabes, and Their Surgical Treatment. R. Leriche.

42. Latent Congenital Subluxation of the Hip.—Gangolphe and Plisson give the detailed case histories and radiographs in eight cases of congenital tendency to dislocation of the hip-joint which did not manifest itself until between 25 and 45. This condition is apt to be wrongly diagnosed as coxalgia, arthritis or fracture of the neck of the femur. Correct diagnosis is difficult from the symptoms, but it may be confirmed by the Roentgen ray. The lesion offers a favorable soil for the development of arthritis and ankylosis, and the treatment should be chiefly by hygiene to prevent such complications. Fatigue must be avoided. Surgical treatment is not justified; symptomatic and functional measures strengthening the muscles and warding off inflammation of the joint are all that is needed.

43. Gastric Crises Not Caused by Tabes.—Severe gastric crises similar to those of tabes, but not accompanied by other tabetic symptoms are not infrequent. Leriche describes three such cases, two of which were caused by a callous ulcer in the posterior wall of the stomach. In the other there was a small cancer of the lesser curvature, but the deep glands were also involved and pressed on the solar plexus. Tumors of the pancreas frequently cause such crises. In all such cases the appropriate surgical treatment should be applied. There are other cases caused by celiac or mesenteric neuralgia, and in these he recommends section of the dorsal roots, from the fifth to the tenth. Root section is justified in cases in which no local lesion can be found.

Presse Médicale, Paris

February 7, XXII, No. 11, pp. 105-112

44 *Periodical Spasm of the Descending Colon in Children. V. Hutinel.
45 Abortion and Artificial Sterilization at Same Time. A. Sarkissiantz.

44. Periodical Pain in the Descending Colon in Children.—Hutinel reports eight cases in which the symptoms suggested invagination of the bowel in the left side, but no tumor could be detected and there was slight or no tenderness, and the symptoms rapidly passed off without leaving a trace. In one of the cases the stools showed a little blood, but direct examination of the rectum disclosed nothing to explain it. The appendix cannot be responsible for the disturbances as they are liable to return after its removal; they are too briefly transient for an inflammatory process. The attacks recur again and again and may become complicated with appendicitis; the children are liable to develop migraine later and some of them become diabetic. Hutinel explains the trouble as a spasm of the large intestine, predominantly in the descending colon and sigmoid flexure. He describes his cases in detail to emphasize the special features of this "gastro-intestinal spasmophilia." It is most common in children between 4 and 15 with an inherited neuropathic taint or family history of diabetes or gout. Most of the children whose cases are related had had colitis at some time in the past and were inclined to constipation, "biliousness" and to recurring sore throat. The descending colon can generally be palpated at various points during an attack as a hard cord or rubber tube; between these points gurgling sounds may be heard. In one case the intestinal attack followed on acetonemic vomiting, and there was mucus in the stools. The parallel tendency to spasm and excessive mucous secretion is frequent, especially in adults. The periodical character of the disturbances is the most prominent feature. Hutinel asks whether we cannot assume that there is a gradual storing up of certain poisons with a special spasm-producing action, and when the accumulation reaches a certain limit, the organism throws it off like the discharge of a Leyden jar. The analogy and connection between the periodical intestinal spasms, attacks of asthma and acetonemic vomiting are striking. Hot applications generally arrest the spasm; he follows this with mild laxatives, distrusting calomel in these cases. The next step is to reduce the irritability of the bowels, striving to harden the child in general and tone up the abdomen. Under these measures the intervals grow longer, or the child may outgrow the tendency.

Revue Mens. de Gynécologie, d'Obstétrique et de Pédiatrie, Paris

January, IX, No. 1, pp. 1-80

46 Origin of Dermoid Cysts of the Ovary. J. Termier.
47 Vaccine Therapy in Gonorrhea in Women; Nine Cases; Failed in Four. R. Henry.

Semaine Médicale, Paris

February 18, XXXIV, No. 7, pp. 73-84

48 How Valvular Lesions Develop. (Comment se constitue une lésion valvulaire du cœur.) H. Vaquez.
49 Small Amount of Blood-Stained Ascites Sign of Tight Constriction of Intestine. (L'ascite hématique dans l'iléus.) F. Lejars.

Archiv für Gynaekologie, Berlin

CII, No. 1, pp. 1-199. Last indexed February 21, p. 652

50 Extremely Young Human Ovum in Situ. G. Linzenmeier.
51 *Exophthalmic Goiter and the Genital Sphere. (Basedow und Genitale.) E. von Graff and J. Novak.
52 *Twins of Different Races. (Nachempfängnis- und Vererbungsfragen bei der Erzeugung rassedifferenter Zwillinge.) L. Nürnberger.
53 Importance of Kyphoscoliosis for Pregnancy, Delivery and the Puerperium. E. Vogt.
54 Embryologic and Anatomic Study of the Appendices of the Broad Ligament. (Das Epithel der Anhangsgebilde des Ligamentum latum.) S. E. Wichmann.
55 *The Changes in the Kidneys during Pregnancy. (Experimentelle Untersuchurg über Nierenveränderungen in der Schwangerschaft.) J. and S. Bondi.
56 *The Thyroid in Connection with the Genital Apparatus. (Schilddrüse und Genitale.) E. von Graff
57 *Tardy Recurrence after Extensive Operation for Uterine Cancer. (Spätrezidiven nach der erweiterten abdominalen Operation bei Carcinoma uteri.) W. Weibel.
58 The Meiostagmin Reaction with Cancer and Pregnancy. J. B. v. Zubrzycki.
59 *Causes and Treatment of Idiopathic Uterine Hemorrhage and Leukorrhea. A. Theilhaber.
60 Premature Separation of Normally Located Placenta. B. Aschner.
61 Duplication of Organs in Genital Sphere and Consequences for Child-Bearing. (Doppelmissbildungen der weiblichen Genitalsphäre.) E. Zalewski.

51. **Exophthalmic Goiter and the Genital Sphere.**—Graff and Novak have been able to find very little on exophthalmic goiter written from the standpoint of the obstetrician and gynecologist, and they offer here a contribution based on 36 cases. Menstruation was of the normal type in only 12 of these patients; in 8 there was complete amenorrhea which had persisted up to a year in the majority and for twelve years in one woman of 47. In 8 women the menses had been much reduced; in 2 they had become excessive. Of the 36 women, 10 were virgins. Four of the women were pregnant, and in one, a iv-para of 36, the Basedow became much aggravated during the pregnancy; in another the disease seemed to have come on with the pregnancy; in another the heart disturbances became so serious that it seemed necessary to induce premature delivery. The other woman, who had pronounced status lymphaticus and stenosis of the trachea, died during operative delivery. Only one of the children seemed normally developed; one was prematurely delivered. The disturbances in the genital sphere with exophthalmic goiter are too common for them to be merely casual. The onset of the Basedow, further, is liable to coincide with puberty, pregnancy or the menopause. In one of the cases reported the first menstruation, at 18, occurred as the exophthalmic goiter first developed; in 2 cases the disease came on first during a pregnancy, and similar cases have been reported by others. It seems probable that in certain cases the genital anomaly is the first to develop, and this starts up the exophthalmic goiter by its influence on the thyroid or on the sympathetic nervous system. The opposite is also known to occur. The exophthalmic goiter may thus be primarily thyrogenous, neurogenous or ovariogenous, and treatment must be guided by this. The details of the thirty-six cases are appended.

52. **Twins of Different Races.**—In the course of his practice at Munich, Nürnberger had his attention attracted to this subject by having to deliver the twins of a white woman married to a "black man." One child was a typical Caucasian, the other a pronounced mulatto. He discusses the history of such occurrences and cites various examples on record, inclining to the belief that Mendel's laws of heredity will explain them, without the necessity of assuming superfetation.

55. **Kidney Changes in Pregnancy.**—Bondi reports extensive experimental research the results of which confirm the assumption that the kidneys are abnormally susceptible during a pregnancy to the action of toxins. This extra susceptibility does not involve the whole organ, but merely the epithelium of the tubules and canaliculi. Under the influence of even very slight injury, which the normal kidney would not feel at all, the epithelium becomes modified so that it permits albumin to pass, and under the influence of more serious injury actual kidney disease may develop. The advantage of restricting the intake of salt is confirmed anew by the experimental findings reported. They also suggest that a preceding bacterial infectious process, generally tonsillitis, is an important factor in the nephritis during as well as outside of pregnancy.

56. **The Thyroid and the Genital Sphere.**—This communication from the clinic for women's diseases at Vienna in charge of Wertheim states that enlargement of the thyroid was detected in 49 per cent. of the 654 pregnant women examined; only 21 of the women had noticed the enlargement before the pregnancy. In 4 cases the children of women with goiter were born with much enlarged thyroid. Albuminuria was found in 16.6 per cent. of 241 women with enlarged thyroid, and in 22.1 per cent. of 267 without. In 33 women with eclampsia, the thyroid was enlarged in 31 per cent. No evidence was found that the thyroid is liable to become enlarged at the menopause, or that there is any connection between myoma and goiter; only 5 of the 112 women with uterine myoma examined had a goiter.

57. **Tardy Recurrence of Cancer of Uterine Cervix.**—Weibel reviews 185 cases of uterine cancer in which the growth was removed with the connected lymph-nodes, according to Wertheim's technic and the interval since has been over five years. Thirteen of the women developed cancer again after an interval between six and eight years, and one had a sarcoma on the foot nearly six years after the operation. In two cases the cancer in the breast or clitoris may be a primary new growth. In the other cases the growth was evidently a metastatic recurrence. The experiences related call for revision of the interval before we can speak of a cure; either a three-year limit must be accepted, which includes 86.5 per cent. of all the recurrences, or else a seven-year limit must be insisted on, as the above material showed recurrence in 3.4 per cent. the fourth year and 3.4 per cent. the fifth year; 2.8 per cent. recurrences the sixth, and 3.4 per cent. recurrences in the seventh year. The three-year limit is certainly enough for the general run of cancers of the uterine cervix; those occurring after this interval are tardy recurrences, and they may string along for four more years or even longer.

59. **Uterine Hemorrhage.**—Theilhaber discusses here the hemorrhage without organic basis in the uterus itself. Cureting helps in some cases probably by inciting the uterus to vigorous contractions; this puts an end to the venous stasis which has been maintaining the hemorrhages. He insists, however, that it should be followed by cauterization after an interval of two or three weeks. General treatment is usually the main thing in management of both essential uterine hemorrhages and leukorrhea. Tonics, a change to the mountains or the seashore or a course of mineral baths may be useful. Ergot often is beneficial, taken before and during the menses, keeping this up for months. Local injection of ergot or hypophysis extract may also help in arresting a hemorrhage. Systematic scarification in the period preceding the menses has also rendered good service in his and Füth's experience. He has applied cauterization about 25,000 times, during the last thirty years, and has never had a serious mishap with it. He regards acute and subacute gonorrhea as a contraindication, but has applied the caustic a number of times in chronic gonorrhea when it has kept up for a year or two. He used to apply a 30 per cent. solution of zinc chlorid, but has lately changed to a 30 per cent. solution of formaldehyd, applying it on a cotton-wound sound. The thickened, hyperemic uterus frequently becomes small and anemic, with subsidence of all tendency to hemorrhage, under the influence of the Roentgen rays.

Beiträge zur Klinik der Tuberkulose, Würzburg

XXIX, No. 3, pp. 279-422. Last Indexed February 7, p. 496

62 *Serodiagnosis of Tuberculosis. V. Zweig and D. Gerson.
63 *Quantitative Diagnosis and Treatment of Tuberculosis. A. Juergensohn.

64 Tuberculosis in Schoolchildren and Means to Fight It. P. Vollmer.
65 *Induced Pneumothorax in Pregnant Women. (Künstlicher Pneumothorax während der Schwangerschaft.) C. Real.
66 Research on Scrofula; 821 cases. (Die "Skrofulosen" der Züricher Heilstätte von 1885-1911.) W. Knoll.
67 *Albuminuria in the Tuberculous. F. D'Onghia.

62. **Serodiagnosis of Tuberculosis.**—Zweig and Gerson report their experience to date with the quantitative determination of the deviation of complement, using the individual complement in the serum under examination instead of the usual guinea-pig serum. The technic is described in detail and the findings in 158 tuberculous patients, in 32 with latent tuberculosis and 27 apparently free from this disease. A positive response was obtained in 72 per cent. of the first group, all tuberculous patients requiring treatment, including a number in the very earliest stages. A positive response was obtained, moreover, in some cases of scarlet fever and in others with extensive suppurative non-tuberculous processes. Two patients have died since, and the necropsy findings confirmed in every respect the findings of the tests.

63. **Quantitative Diagnosis and Guide to Tuberculin Treatment in Tuberculosis.**—Juergensohn reviews our present knowledge as to the elements of the tubercle bacillus and the way in which for each of these elements the body produces antibodies if it has enough vitality; if not, in favorable cases, the production of antibodies can be inaugurated and maintained by aid from without. This aid from without can be by nourishing food and fresh air to augment the vitality, or by injection of dead bacillus material to increase the amount of antibodies by cumulative action. The antibodies already formed act on the least resistant bacteria first; as these are destroyed their products stimulate still further antibody production which permits the next least resistant group of bacteria to be destroyed, and so on. This destruction of bacteria may become so extensive that serious harm may result from the flooding of the organism with the products of the bacteria. This is what happens when too large a dose of tuberculin is injected. All systems of tuberculin treatment which proceed by a regular sequence of doses, at given intervals of time, without regard to the individual conditions at the moment, are therefore liable to do more harm than good.

He thinks the tuberculin treatment should be begun when the antibody production begins to stand still, without waiting for it to decline, and says that the Ellermann-Erlandsen titration method permits recognition of this. (Described in THE JOURNAL, 1909, lii, 1634, and 1912, lix, 1326.)

During the first two days we get the quantitative determination of the antibodies for the toxin, and from the fifth to the eleventh day the determination of the partial antibodies for the neutral fat. By heeding these findings and comparing them with the leukocytosis, the blood-pressure, the pulse and the temperature curve, he says we get an accurate and comprehensive oversight of the individual conditions at the moment, and effectual treatment can then be applied, neither more nor less than what is needed. Holmgren's capillary adsorption blotting-paper test method is also instructive. Juergensohn has worked out a mathematical formula to express the various values, as a guide and record, and states that of 212 tuberculous patients treated on this basis, full earning capacity was regained by 26 and a complete cure was realized in 22 cases, among the 71 in the first stage; the corresponding figures were 19 and 7 in 47 cases in the second stage; 2 and 1 in 26 in the third stage; 6 and 4 in 19 with tuberculosis of the nervous system, and 10 and 6 in 40 with surgical tuberculosis. Only 10 of the total 212 showed no benefit from the treatment, and these were in the later stages of pulmonary tuberculosis; 59 were improved; 68 regained full earning capacity, and 40 were completely cured. Strict repose was enforced for the first week or ten days, while the dosage was being studied. The injections were generally made Saturday and the patient reclined for two days. Except for this they could attend to their usual business; all were outpatients except in the few far advanced cases. The intervals between injections ranged from eight to eighty-five days, the average about twenty-seven. A total of less than ten injections was given in all but 4 cases; one patient required twenty, one fourteen and two ten injections.

65. **Artificial Pneumothorax during Pregnancy.**—Real calls attention to the excellent effect of artificial pneumothorax in a woman of 22, eight months pregnant, with an extensive tuberculous process in the right lung and cavity in the upper lobe. The gas was injected very cautiously and the pulse, heart action and fetal heart sounds showed no disturbance. The lung was completely compressed by the second injection and the expectoration was very much reduced and the sputum cleared up. On account of the contracted pelvis and an ovarian tumor, cesarean section was done and the woman came out of her pregnancy much improved. Real has been able to find only one other case on record of pneumothorax induced in a pregnant woman; this was at the fourth month and the other lung was already actively involved. The woman did not complete the course and died two months after delivery. These cases confirm the theoretical assumption that an induced pneumothorax does not affect the development of the fetus and probably would not interfere with normal delivery, while Real's case shows that it does not add to the gravity of a major abdominal operation.

67. **Albuminuria in the Tuberculous.**—D'Onghia concludes from his experience in fifty cases of pulmonary tuberculosis that simple albuminuria is a sign of incipient interstitial nephritis. When the urine contains further small irregular granular bodies—"miliary bodies"—this is a sign of diapedesis of leukocytes and indicates that the nephritis has got quite a firm hold. The next step in the process is the appearance of tube-casts. On account of the low vitality of the tuberculous, the heart gives up the task of compensation at once when there is any disturbance in the circulation through the kidneys, and the phenomena of hyposystole dominate the clinical picture. The absence of the usual cardiorenal signs of nephritis explains why the kidney lesions with pulmonary tuberculosis so long escape notice.

Berliner klinische Wochenschrift

February 3, LI, No. 6, pp. 241-288

68 *Bone-Flap Operation for Paralysis of the Forearm. (Neue Knochenoperation bei Vorderarmlähmung.) O. Vulpius.
69 *Localization of Spinal-Cord Tumors. (Lokaldiagnose von Rückenmarksgeschwülsten.) G. Söderbergh.
70 Epidemic Poliomyelitis in Scattered Rural Populace. (Eine Poliomyelitisepidemie im Frühjahr 1912 in Lindaas, Norwegen.) E. Anser.
71 Essential Elements of the Hypophysis. H. Fühner.
72 *Thrombosis of Mesenteric Vein with Latent Sclerosis of Portal Vein. F. Geppert and K. Siegfried.
73 *Radio-Activity Applied to Trypanosomes. (Experimentelle Untersuchungen an Trypanosomen über die biologische Strahlenwirkung.) L. Halberstaedter.
74 *Determination of Protective Ferments by Soap Solution and Precipitation in Diagnosis of Cancer. (Zur Sicherung der Carcinomdiagnose.) M. Piorkowski.
75 Melanotic Cells in Nasal Mucosa. (Chromatophore Zellen in der Nasenschleimhaut.) A. Proskauer.
76 Instrument for Demonstration of Compensatory Movements of the Eyes for which the Ear is Responsible. (Das Oto-Ophthalmotrop.) J. Rothfeld.
77 Present Status and New Aims of Radium and Mesothorium Therapy. P. Lazarus. Commenced in No. 5.

68. **Bone-Flap in Treatment of Paralysis of the Forearm.**—Vulpius gives an illustrated description of the simple technic with which he twisted a bone-flap around to induce synostosis between the two bones of the forearm, a little below the middle. The fixation was complete after ten weeks in a plaster dressing. The results were satisfactory, but in two later cases he took the bone-periosteum flap from the tibia. The flap is about 5 cm. long and 5 cm. thick. This corrects the pronation contracture, and he thinks it may prove useful not only for flaccid but also in some cases of spastic paralysis.

69. **Localization of Spinal-Cord Tumors.**—Practically the same article was summarized in THE JOURNAL, Nov. 8, 1913, p. 1760. Söderbergh states that there has been no tendency to recurrence of the sarcoma removed from the cauda over three years ago. The man is still in complete health and working constantly at his trade.

72. **Mesenteric Thrombosis.**—An apparently healthy cabinetmaker of 40 suddenly developed intense pain in the upper

abdomen, suggesting perforation of an ulcer or incarcerated hernia or mesenteric thrombosis, but there were no signs of ileus or stomach trouble. The necropsy three days later confirmed the diagnosis of mesenteric thrombosis and explained its origin in an old, unsuspected phlebosclerosis of the portal vein which had run an entirely latent course.

73. **Action of Radio-Active Substances.**—This communication from the radium institute of the Charité at Berlin states that trypanosomes are materially influenced by the rays from radio-active substances. They lose their infecting property but retain their motility unimpaired. This renders them peculiarly suitable for biologic experimental research work with various kinds of rays.

74. **Diagnosis of Cancer.**—Piorkowski reports that a process of saponification is a material aid in preparing specimens for biologic tests. The saponification disintegrates the tissues without injuring the antigens.

Correspondenz-Blatt für Schweizer Aerzte, Basel

February 7, XLIV, No. 6, pp. 161-192

78 Early Diagnosis of Pulmonary Tuberculosis by the Non-Specialist. R. Dietschy.
79 Quantitative Silver Nitrate-Iodoform Test for Acetone in the Urine. E. and L. Sobel.

Deutsche medizinische Wochenschrift, Berlin

February 5, XL, No. 6, pp. 265-312

80 Treatment of Severe Acute Infection in Orbit. F. Schieck.
81 Transmission of Mouse Cancer by Filtered Material. (Uebertragung von Mäuserkarzinomen durch filtriertes Ausgangsmaterial.) F. Henke and Schwarz.
82 Importance and Source of the So-Called Protective Ferments. (Sog. Abwehrfermente.) E. Abderhalden.
83 Specific Nature of Protective Ferments. P. Hirsch.
84 Serodiagnosis in Gynecology. Allmann.
85 Source of Error from Cotton Plug in the Wassermann Test. (Eine durch Watte bedingte Fehlerquelle bei der Wa. R.) H. Langer.
86 Fibrous Ostitis after Typhoid. A. Welz.
87 *Secondary Colon Bacillus Infection of the Kidney Pelvis. A. Bloch.
88 Calcium Chlorid Sterilization on Small Scale of Drinking Water. Aumann and Storp.
89 *Whooping-Cough; Nature and Treatment. J. Ritter.

87. **Pyelitis.**—Bloch refers in particular to secondary colon-bacillus infection of the kidney pelvis, saying that active measures are contra-indicated in the acute stage when the trouble is secondary to severe infection of the kidney and there is no retention of urine in the kidney pelvis. Internal medication is required here. But when the pelvis or kidney or both are enlarged and tender, and pus and colon bacilli are found in the residual urine the catheter should be introduced into the kidney pelvis and left there so that the pelvis can be repeatedly rinsed out. He gives four curves to show the prompt benefit that may be realized by this method of treatment. He adds that the possibility of pyelitis must be borne in mind in all cases of gonorrheal cystitis when the urine does not clear up in spite of appropriate treatment of the bladder, even when there are no subjective symptoms on the part of the kidney. When secondary colon bacilli pyelitis is recognized and treated in time, a complete cure may be counted on in the majority of cases. With the pyelo-nephritic form, there is always the possibility that it may terminate in true chronic parenchymatous nephritis. The colon bacillus infection of the kidney pelvis generally starts in the bladder and the upward spread is favored by transient overpressure in the bladder, frequently produced by irritant lavage of the bladder, or transient obstruction of the flow of urine from some slight hindrance in the ureter, or mechanical irritation from intense hyperemia in the urogenital system.

89. **Whooping-Cough.**—Ritter says that nourishing food and out-of-door life are the main reliance in treatment of whooping-cough, with sedatives as indicated, but he protests that by out-of-door life he does not mean necessarily a change of air. This can be realized at home without the necessity for spreading the infection in another place. If a change of scene is necessary, all precautions must be taken to refrain from infecting others and for this, he says, only direct contact need be avoided as he is convinced that the contagion occurs through the sputum alone.

Münchener medizinische Wochenschrift

February 10, LXI, No. 6, pp. 289-344

90 *Bronchotetany in Adults and Its Treatment with Calcium. H. Curschmann.
91 *Thyroid Treatment of Uterine Hemorrhage. (Die Schilddrüsenbehandlung der hämorrhagischen Metropathien.) E. Sehrt.
92 *Sign of Sclerosis of the Aorta. (Anstoss der Blutsäule in den Schlüsselbeinarterien als Erkennungszeichen für die Sklerose der Brustaorta.) C. Trunecek.
93 Serum Acquires Radio-Active Properties by Exposure to Roentgen Rays. (Eigenschaften des Blutes resp. Serums nach Einwirkung der Röntgenstrahlen.) S. Wermel.
94 Modification of Abnormal Leukocyte Picture by Electricity. (Ueber raschwirkende Beeinflussung abnormer Leukozytenbilder durch ein neues Verfahren. III.) O. Veraguth and R. Seyderhelm. See abstr. 83, p. 1853, vol. LXI.
95 Changes in the Blood in Whooping-Cough. (Blutuntersuchungen bei Keuchhusten.) W. Schneider.
96 Peptone Culture Medium for Anthrax Bacilli. (Zum Nachweis von Milzbrand.) H. Jaenisch.
97 Intra-Ocular Tuberculosis. W. Gilbert.
98 Retraction of Interspaces during Inspiration as Sign of Pleuritic Adhesions. (Atmungsbewegungen des Brustkorbes und der Interkostalräume bei Erkrankungen der Pleuren.) R. Richter.
99 *Radiotherapy of Cancer. (Weitere Erfahrungen mit der Mesothoriumbehandlung des Karzinoms.) A. Döderlein and E. v. Seuffert. Commenced in No. 4.

90. **Bronchotetany in Adults and Its Treatment with Calcium.**—Curschmann regards the conception of spasm of the bronchi, recently advanced (as described in THE JOURNAL, 1913, lxi, 1330), as great progress and thinks that adults are subject to it as well as children. He called attention some years ago to the connection between asthma and other symptoms suggesting disturbance in the vagus and sympathetic nervous systems; he classified the syndrome as intermittent Basedow-asthma. Further study of such cases revealed signs of tetany, especially the Chvostek sign coming on after the attack in some of the cases. Most of his patients were seen at the dispensary but one was under observation for a long time and this case is described in detail. The patient was a farmer of 32 who for the last three years had been subject to attacks of violent asthma during which various symptoms of tetany became apparent, subsiding with the attack. There was no history of spasmophilia in previous years. Under systematic calcium chlorid treatment the tendency to asthma was cured and with it all the signs of tetany. The success of calcium confirms the assumption that the same hypothetic irritation which produces the asthma acts on the other organs innervated by the vegetative system and thus on the thyroid, stimulating the latter to periodical supersecretion. Or the parathyroids may feel the influence most, in which case bronchotetany would be the main manifestation. He discusses the theoretical and clinical bases for calcium therapy. It seems to have an unmistakable action on the toxic metabolism and the resulting injury of the general health. Epinephrin, on the other hand, although a fashionable remedy for asthma, is probably contra-indicated with bronchotetany as it increases the symptoms of tetany and—at least with subcutaneous administration—may bring on an attack of asthma.

91. **Thyroid Treatment of Uterine Hemorrhage.**—Sehrt emphasizes the importance of influencing the hemorrhage without interfering with the physiological conditions. Our better knowledge of the internal secretions is opening new methods of treatment as we realize the close connection between the hypophysis, thyroid and genital organs. The connection between the thyroid and the ovaries seems to be particularly close, and the thyroid may be responsible for conditions in the ovaries which entail bleeding in the uterus. We understand this a little better since we have learned the characteristic behavior of the blood when the thyroid is functioning to excess or not enough. With hyperfunction, the blood is abnormally slow in coagulating; with deficient functioning it coagulates abnormally fast. He found in fifty-five cases of uterine hemorrhage without discoverable local cause that thirty-eight of the patients had all the signs of pronounced hypofunction of the thyroid. On this basis he gave thyroid treatment, as he describes in detail, and in every case marked benefit was apparent. Not only the hemorrhages, but the general health showed a decided change for the better; the influence was particularly striking on spastic constipation.

92. **Sign of Sclerosis of the Aorta.**—Trunecek describes, with illustrations, the bulging in the subclavian arteries, where they turn at a right angle to the axis of the aorta, when the walls of the latter have lost their elasticity. As the aorta cannot stretch, the blood entering it at each pulse wave races with undiminished force into the artery beyond and hits against the upper wall of the subclavian artery at this point. The bulging where it hits this wall can be easily felt with the finger with each pulse wave. According to the intensity and extent of the bulging, the degree of the sclerosis of the aorta can be estimated. The bulging is usually felt in the space between the scalenus muscles. This sign is easily determined and requires only a little experience while it does not fatigue the patient.

99. **Radiotherapy of Cancer.**—Döderlein and Seuffert say that it is much harder to apply radiotherapy, keeping the patients under protracted observation and examining them anew every two or three weeks, than the old way of merely deciding whether the case was operable and having the operation done once for all. With radiotherapy we have to keep oversight over the patient as death approaches, much more than used to be the case. This is compensated for, however, by the rejoicing over those cases in which in a few weeks or months we find that not only all the signs of the cancer have subsided, but the patients are restored to health and active life. The future alone can tell whether these women are actually completely cured, as seems now to be the case.

If this proves true, then operative treatment of uterine cancer will be relegated to the second place. We are already convinced, they declare, that radiotherapy can accomplish more than operative measures. One of the pressing questions now is to determine which of the pains and general phenomena are due to the radiotherapy and which must be ascribed to the cancer itself. In a number of cases the pains proved to be the work of the cancer proliferating in the depths which at first had not been felt. This is something new in the treatment of cancer. In previous palliative treatment we knew of course that the growth was responsible for any increase in the symptoms. But now any aggravation of the symptoms is promptly attributed to the effect of the radiotherapy; not only the patients but their family physicians are liable to hold the radiotherapy responsible for every aggravation of the condition. Döderlein has had several very distressing occurrences of this kind; in two of the cases necropsy showed that there must have been metastasis before the treatment was applied.

Cancer of the female genital organs is more accessible to radiotherapy and responds better than cancer elsewhere, and any shriveling or stricture formation is of less consequence here than elsewhere. Gynecologists therefore have a less difficult task than surgeons in general in respect to radiotherapy of cancer. Döderlein's experiences are reviewed in detail and various points in technic are discussed.

Therapie der Gegenwart, Berlin

February, XVI, No. 2, pp. 49-96

100 *Treatment of Rachitis. B. Salge. Commenced in No. 1.
101 Radiotherapy in General Practice. (Radiumtherapie des praktischen Arztes.) H. Schmidt.
102 *Sterility in Women. (Behandlung der weiblichen Unfruchtbarkeit.) E. Opitz. Commenced in No. 1.
103 *Digitalis in Uterine Hemorrhage. Focke.
104 *The Toxic Limit with Alypin. L. Lichtenstein.

100. **Rachitis.**—Salge comments on the diversity of views as to the nature of rachitis, some regarding the disturbances in bone growth as the result of inflammation, others attributing them to deranged metabolism. This brings conflicting views in regard to treatment, and we are still far from a true causal treatment of rachitis. Children with rickets are generally bottle-fed, on milk, and may seem to be thriving, but the muscles are flabby and the children are pale and sometimes nervous and restless, with a tendency to spasms. Bad housing conditions, lack of light and of stimulation of the skin by fresh air seem to predispose to rachitis, and change of diet and cautious, passive muscular exercise with, possibly, massage of the abdomen and muscles may bring about a marked change for the better or complete cure. The muscle weakness and the anemia may develop before the bones show much change; there may be recurring bronchitis owing to the defective action of the chest from the weakness of the muscles and softness of the bones. Salge insists that milk should be dropped entirely and starchy foods be given, gradually adding vegetables (spinach, carrots, cauliflower, asparagus, etc.), with soft mashed potatoes, etc., and fruit, fresh and stewed. A little meat can be given to children over a year old. Eggs are less favorable, and many rachitic children are unable to eat them. Milk should be restricted to 200 or 300 c.c. at most. Large doses of calcium chlorid seem to cure the tendency to spasms as long as it is being taken. Phosphorus is also useful as an adjuvant to the dietetic measures; it acts more favorably the more pronounced the rachitic symptoms. Its tendency to induce sclerosis in bone tissue counteracts the rachitic softening of the bones. Breast-fed children seldom have rachitis in a severe form. The change to the above diet is recommended here also. It is possible, Salge remarks in conclusion, that the theory of vitamins may yet solve the problem of rachitis.

102. **Sterility in the Female.**—Opitz states that too little attention is paid to the general condition of the sterile woman. It frequently has happened in his experience that a course of general treatment was what was needed, even when the women were apparently in normal health and some anomaly in the genital apparatus seemed to explain the failure to conceive. He examines the husband and makes a general examination of the woman and treats anemia, chlorosis, etc., restricting the amount of meat and increasing the proportion of vegetables and fruit. This is supplemented by a course of arsenic which seems to have a special action on ovary and uterus functioning. In numbers of cases a course of arsenic, iron and calcium glycerophosphate has been followed by the desired effect. Catarrh of the cervix may mechanically interfere with conception. When obesity develops suddenly the ovaries are liable to be functioning defectively, and thyroid treatment may remove the cause of both, as in two cases he reports in which normal conditions were thus restored in the genital sphere. A small tumor in one ovary may hamper the functioning of both, while its removal may be followed by conception. A still more frequent cause of sterility is mechanical displacement from adhesions left from inflammatory processes in appendix or adnexa. In one case he found the tubes twice the normal length, thickened and contorted. He resected half of each tube and menstruation became normal thereafter with pregnancy the following year. He ascribes the previously very irregular menstruation to a series of tubal pregnancies with the casting off of the ovum in each without severe disturbances.

103. **Digitalis for Uterine Hemorrhage.**—Focke emphasizes that with uterine hemorrhage without an organic basis, digitalis is a powerful aid to the local measures applied. It is particularly useful in hemorrhage during a pregnancy, and in recurring menorrhagia in the young and in the elderly; in short in all cases in which the uterus is apparently sound and some disturbance in the circulation causes a tendency to transient congestion and spontaneous (essential) bleeding. He has prescribed digitalis for uterine hemorrhages in 100 cases during the last fourteen years and here analyzes fifty of them. When the uterus was diseased there was not much effect from the drug, but it proved invariably effectual in his twenty-nine cases of excessive or too frequently returning menstrual hemorrhage. In these cases he commences the digitalis a week before the anticipated menstrual period. Coffee must be dropped as this seems to counteract the action of the digitalis. Four in this group had mitral insufficiency but the others had no signs of heart trouble. The digitalis is an aid in differentiating, often rendering local examination unnecessary in girls; if the digitalis does not help at all, some local trouble may be surmised and gynecologic examination becomes indispensable.

104. **Alypin Poisoning.**—Lichtenstein refers to the sudden fatal collapse after injection of alypin in a case reported by

Proskauer and one by Ritter. Schröder and Garrasch have also reported cases of convulsions, stupor and asphyxia after its use, and Lichtenstein adds another to this group. His patient was a robust man of 35, and 100 gm. of a 1 per cent. solution of alypin was injected to block the sciatic nerve. Ten minutes later signs of acute alypin intoxication followed, as above, with cyanosis, tonic-clonic spasms, eyeballs rolled upward, the respiration arrested. The patient began to breathe again after about a minute and a half, and improved under stimulants but was unconscious for an hour.

Zentralblatt für Chirurgie, Leipsic

February 14, XLI, No. 7, pp. 273-320

105 Operative Treatment of Ulcer of the Lesser Curvature. Baum.
106 Advantages of Bridge Plaster Cast for Tuberculous Hip and Knee Processes. (Die Vorteile des Brückengipsverbandes.) F. Loeffler.
107 Extension Screw and Plaster Cast. (Modification des Gipsverbandes bei Verwendung der Distraktionsschraube nach Kaefer-Hackenbruch.) N. Kaefer.

Zentralblatt für Gynäkologie

February 14, XXXVIII, No. 7, pp. 258-296

108 Serum of Pregnant Women with Albuminuria Digests Placenta Tissue. (Das proteo- bezw. peptolytisches Vermögen des Serums bei Schwangerschaftsalbuminurie.) H. Hinselmann.
109 Pregnancy Acromegaly. R. Marek.
110 Traumatic Vaginal Cancer from Pessary; Supposed to be Third Case on Record. (Zur Aetiologie des Scheidenkrebses.) K. Edelberg.
111 Dialysis Serodiagnosis as Modified by Menstruation and Pregnancy. S. Kjaergaard.

Zentralblatt für innere Medizin, Leipsic

February 14, XXXV, No. 7, pp. 153-184

112 Serum Nitrogen that will Not Dialyze. (Gehalt des menschlichen Blutserums an adialysablem Stickstoff.) H. Pribram.

Gazzetta degli Ospedali e delle Cliniche, Milan

XXXV, Nos. 13-15, pp. 129-160

113 Behavior of Vegetative Nervous System and Blood-Producing Apparatus after Removal of the Thyroid. G. Pertelli.
114 Phosphocarnic-Acid Content of the Central Nervous System in Animals after Removal of Thyroid or Parathyroids. A. Nizzoli.
115 Total Anuria from Mercuric Chlorid Poisoning. (Avvelenamento da sublimato corrosivo.) F. Marcantoni.

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116 The Phenolsulphonephthalein Test and the "Uremic Constant" the Only Reliable Means to Estimate Functional Capacity of the Kidneys. (Sui metodi di determinazione del valore funzionale del rene.) P. Marogna.

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117 Abuse of Subcutaneous Method of Administering Drugs. (La follia delle cure ipodermiche.) G. Ferreri.

Riforma Medica, Naples

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118 Experimental Gastric Ulcer Followed Resection of Vagus and Occasionally Resection of Pneumogastric. (La resezione intratoracica laterale del vago nei suoi rapporti con la patogenesi dell' ulcera rotonda dello stomaco.) L. Antonini. Commenced in No. 4.
119 Interpretation of Facial Spasms. G. Rosaenda.
120 Premature Senile Genito-Dystrophic Xeroderma. (Morbo di Rummo e Ferrannini.) M. Bertolotti.

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121 The Blood Serum in Experimental Adrenal Disease. (Sul potere battericida ed indice opsonico del siero di sangue in alcuni stati surrenali sperimentali.) V. Cerfoglia.

Rivista Ospedaliera, Rome

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122 Tuberculosis of the Uterus. (Caso di tubercolosi dell'endometrio.) E. Misuraca.
123 Papilloma and Simple Ulcer of the Bladder. G. Seri.

Brazil-Medico, Rio de Janeiro

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124 Experimental Infection through Sound Mucosa. (Infecção de toxoplasmose e de paralysia bulbar infectuosa pelas mucosas sans.) A. Carini and J. J. Maciel.
125 Acute Hemeralopia. (A cegueira crepuscular aguda e sua pathogenia.) E. Campos. Commenced in No. 4.

Semana Medica, Buenos Aires

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126 Diphtheria; Anlysis of 3,000 Cases. R. Cabrera.
127 Prostitution and Venereal Diseases. A. M. Gimenez.
128 Retrograde Cureting of the Nasal Passages. M. J. Rizzi.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

November 8, II, No. 19, pp. 1599-1682

129 *Transplantation of Joints. (Over transplantatie en haar beteekenis voor de hedendaagsche heelkunde.) H. Küttner.
130 *Nature and Treatment of Diabetes. A. T. Hoedemakers.

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131 *Eclampsia. K. de Snoo.
132 Cooperation of the Cerebral Hemispheres. (Over het samenwerken der groote hersenhelften.) C. T. van Valkenburg.

129. **Transplantation.**—After considering the various forms and methods of transplantation of various tissues, and discussing the results, Küttner describes his own method and success with the transplanting of an entire joint taken from a cadaver. He emphasizes the necessity for minutely careful post-mortem examination of the body and bacteriologic examination of the part which is to be transplanted, to avoid inoculating disease. Remarkable results were obtained in his two cases reported in detail.

130. **Diabetes.**—Hoedemakers explains the pathological physiology of diabetes and the aims of treatment. It should combat both the glycosuria and the appearance of acetone in the urine. The pathologic significance of the glycosuria is the accompanying loss of calories, thus depriving the body of needed nourishment. The accumulation of the acetone bodies is probably responsible for the coma and loss of energy.

131. **Eclampsia.**—There is no acceptable definition of pregnancy intoxication; even the conception of anaphylaxis is inadequate to explain all the cases of eclampsia. This is preeminently, de Snoo remarks, *die Krankheit der Theorien*, and many more new theories probably will yet be formulated in regard to it. There is at present a tendency to return to the therapeutic measure which was employed for years prior to 1870, that is, blood-letting. Since April, 1911, Zweifel has applied venesection in eighty-nine cases, withdrawing about 500 c.c. of blood, with good results. The theory of Traube-Rosenstein concerning brain-anemia led Schröder to teach, about 1870, that blood-letting had no effect. This led to expectant treatment, with administration of narcotics, chloral, chloroform, morphin, and with hot packs, baths and diaphoretics. This was the treatment between 1870 and 1890. It was accompanied by an average mortality of 30 per cent., and this high mortality led Dührssen to advocate prompt interruption of the pregnancy as the routine treatment. With this the death-rate was lowered to 15 per cent. The mortality percentage with active interference is everywhere about the same, but the mortality with expectant treatment varies considerably, and has been brought down to about 10 per cent. Zweifel combined the Stroganoff prophylactic method of treatment with venesection and thereby reduced the mortality to 5.9 per cent., thus returning to the treatment of the period prior to 1870.

Meditsinskoe Obozrienie, Moscow

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133 Albumin in the Sputum as Sign of Tuberculosis. O. N. Mellkiantz.
134 Vaccine Therapy of Gonorrhea. P. Ilinsky.

Pediatria, St. Petersburg

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135 Spinal Meningitis of Malarial Origin; Three Cases. I. N. Bistrenin.
136 Sunlight and Open-Air Treatment of Children; 1,120 Cases. L. Finkelstein.
137 Experimental and Clinical Study of Digestion and Assimilation of Pepsin-Milk. (Pepto-moloka.) Z. O. Mitchnik.

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138 Kala-Azar in Young Child. (Leishmaniosis u rebenka 1 g. 2 m.) A. K. Morozoff.
139 Mongolism. T. N. Tchebotarevska.
140 Purpura. A. Artamonoff. Concluded in No. 10.

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141 Importance of Individual Isolation in Combating Hospital Infections. D. A. Sokoloff.
142 Albuminuria in Children. M. L. Abelman.

Ugeskrift for Læger, Copenhagen

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143 Pessary Treatment of Genital Prolapse. I. P. Hartmann.